REVISION OF THE NEW WORLD GENUS *HADROMEROPSIS* PIERCE
(Coleoptera, Curculionidae, Tanymecini)

by
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ABSTRACT

The genus *Hadromeropsis* Pierce is revised; included are a review of the nomenclature, taxonomy, a key to the species, illustrations, distribution maps, and a discussion of the morphology of the male and female genitalia.

The genus is divided into two subgenera: the nominate subgenus *Hadromeropsis*, type-species *nobilitatus* (Gyllenhal), and the new subgenus *Hadrorestes*, type-species *pectinatus* n. sp. Of the 52 species assigned to the genus 35 are described as new. The species in the nominate subgenus are as follows: *opalinus* (Horn) from Arizona and Mexico; *fulgens* (Champion) from Mexico; *crinitus* n. sp. from Mexico; *flagellatus* n. sp. from Mexico; *dejeanii* (Boheman) from Mexico; *amoenus* n. sp. from Mexico; *scintillans* (Champion) from Guatemala and Mexico; *micans* (Champion) from Guatemala; *brevicomus* n. sp. from Mexico; *aureus* (Blanchard) from Bolivia; *cretatus* (Champion) from Costa Rica and Panama; *rufipes* (Champion) from Costa Rica; *superbus* (Heller) from Argentina; *gemmifer* (Boheman) from Colombia, Costa Rica, Guatemala, Panama, and Venezuela; *meridianus* n. sp. from Brazil and Colombia; *batesi* n. sp. from Bolivia, Brazil, and Peru; *togatus* (Boheman) from Brazil and Paraguay; *argentinensis* (Hustache) from Argentina, Brazil, Paraguay, and Uruguay; *plebeius* n. sp. from Brazil; *pulverulentus* n. sp. from Brazil; *pallidus* n. sp. from Argentina, Brazil, Paraguay, and Uruguay; *speculifer* n. sp. from Brazil; *beverlyae* n. sp. from Brazil; *nobilitatus* (Gyllenhal) from Argentina and Brazil; *atomarius* (Boheman) from Brazil; *excubitor* n. sp. from Brazil; and *fasciatus* (Lucas) from Brazil. The species in the subgenus *Hadrorestes* are as follows: *alacer* n. sp. from Colombia and Ecuador; *inconscriptus* n. sp. from Peru; *nebulicolus* n. sp. from Colombia; *silaceus* n. sp. from Colombia; *exilis* n. sp. from Bolivia; *impressicollis* (Kirsch) from Colombia; *institulus* n. sp. from Ecuador; *bombycinus* n. sp. from Peru; *brachypterus* n. sp. (locality unknown); *transandinus* n. sp. from Ecuador; *nanus* n. sp. from Ecuador; *apicalis* n. sp. from Ecuador; *dialeucus* n. sp. from Venezuela; *contractus* n. sp. from Bolivia; *pectinatus* n. sp. from Bolivia, Colombia, and Peru; *conquisitus* n. sp. from Ecuador; *scambus* n. sp. from Ecuador; *magicus* (Pascoe) from Brazil (?) and Colombia; *nitidus* n. sp. from Ecuador; *mandibularis* n. sp. from Colombia; *spiculatus* n. sp. from Bolivia and Peru; *picchuensis* n. sp. from Peru; and *cavifrons* n. sp. from Peru. The new species *earinus* from Ecuador and *striatus* from Colombia are not assigned to a subgenus. Species synonymized are: *Hadromerus scabricollis* Faust, a synonym of *gemmifer* (Boheman); *Hadromerus brachispinosus* Boheman, a synonym of *togatus* (Boheman); *Hadromerus herbaceus* Lucas, a synonym of *fasciatus* (Lucas); *Hadromerus ruficrus* Kirsch and *Hadromeropsis subaeneus* Voss, synonyms of *impressicollis* (Kirsch).

Lectotypes are designated for *opalinus* (Horn), *fulgens* (Champion), *scintillans* (Champion), *micans* (Champion), *superbus* (Heller), *brachispinosus* (Boheman), *argentinensis* (Hustache), *fasciatus* (Lucas), and *herbaceus* (Lucas).

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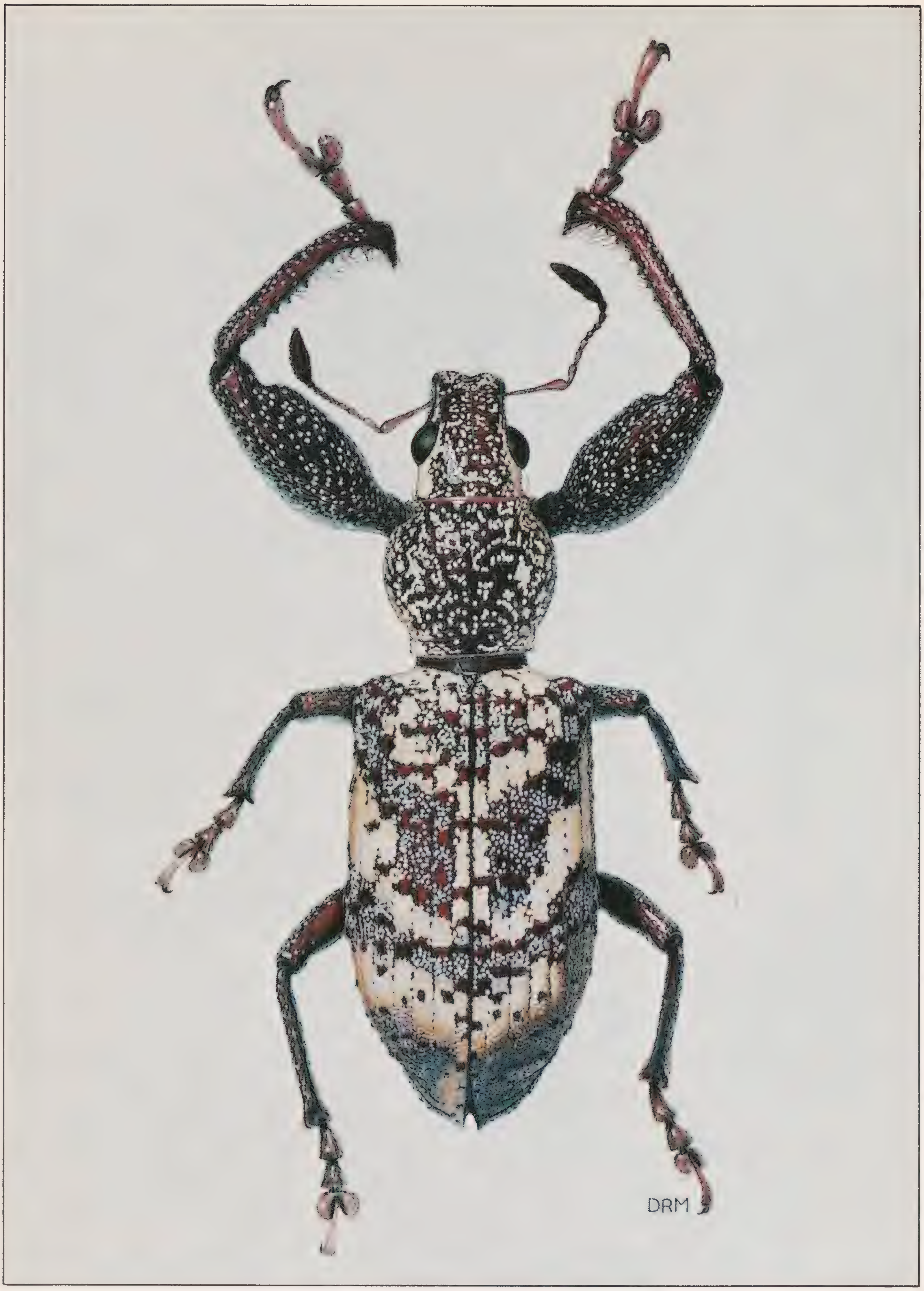

Fig. 1. *H. (Hadromeropsis) nobilitatus* (Gyllenhal), type-species of *Hadromeropsis*. Male, dorsal habitus.

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HISTORICAL REVIEW

There has been considerable nomenclatural confusion involving the use of *Hadromerus* Schoenherr, *Hadromeropsis* Pierce, and *Siderodactylus* Schoenherr, partly due to various interpretations of the literature and partly because the original very obscure description of *Hadromerus* has apparently been overlooked by many authors, including me.*

In 1823, column 1141, Schoenherr first published "96. *Hadromerus* nob. Typ.: *Curc*. *sagittarius* Oliv." This bare reference, without description, is nonetheless a valid indication according to Art. 16a(v) of the International Code (1964). Thus *sagittarius* Olivier, 1807, from Senegal, is fixed as the type-species of *Hadromerus* Schoenherr, 1823, by original designation and monotypy. The characters of the genus are first described and discussed by Schoenherr in 1826 (pp. 136, 137) where he lists *nobilitatus* from Brazil for the first time as "Typus" of Stirps 1a and *sagittarius* Olivier from Senegal as "Typus" of Stirps 2a. However, there is no description of *nobilitatus* here, other than the description of Stirps 1a; this is interpreted as Stirps 1a being a subgenus but invalid here since *nobilitatus* is a *nomen* *nudum*. Thus, in this second publication, nothing was changed nomenclaturally.

In 1833 (p. 12), Schoenherr in his "Tabula synoptica," lists *Hadromerus* much as he did in 1823: "Genus 102. *Hadromerus*. Nob. Typus: *Hadr*. *sagittarius*. *Curc*. *id*. Oliv."

In 1834, Schoenherr (p. 125) first published the name *Siderodactylus* citing, "*Hadromerus* Schh. olim (1).-Curculio Oliv.," "(1) Schh. Curc. Disp. Meth. p.137. *Hadromerus*, stirps 2.," and listing *sagittarius* as the type. Thus, *Siderodactylus* is a synonym of *Hadromerus* Sch., 1823. Added to the genus *Siderodactylus* at this time were *adstringatus* Gyll. n. sp. and *rhodinus* Gyll. n. sp., both from Senegal. On p. 127, Schoenherr (1834) describes *Hadromerus* citing, "Schh. Curc. Disp. Meth., p. 136, no. 69 [sic]" as the original description. On p. 128 (loc.cit.) *nobilitatus* is first described by Gyllenhal, and no other species added.

Pierce, 1913, p. 400, tried to resolve the confusion by stating, "For the genus with *nobilitatus* as type we may take a new name, *Hadromeropsis*." It is fortunate that Pierce discussed the problem and stated the type-species clearly, because he accidentally cited Schoenherr, 1834, p. 125, the page for the *sagittarius*-based genus instead of the *nobilitatus*-based genus (p.127), to receive the new name.

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* I thank Richard T. Thompson, London, for bringing this to my attention.

Marshall (1952:261-262) disagreed with Pierce, but Marshall's reasoning would be disallowed by the International Code published subsequently in 1964.

Since Pierce's publication of the name *Hadromeropsis* in 1913, the name has been applied to the New World genus in most of the literature including Günther and Zumpt (1933), Blackwelder (1957), Hustache (1938), and Van Emden (1944). Exceptions to this usage are Heller (1921), Hustache (1928), Marshall (1952), and Kuschel (1955). Based on taxonomic characters, all *Hadromerus* are African and all *Hadromeropsis* are New World.

In both Günther and Zumpt (loc. cit.: 102-103) and Blackwelder (loc. cit.: 800), six *nomina nuda* are listed as synonyms of *Hadromeropsis*. I have not repeated these names with the valid species but record them here. They are as follows: "Hadromerus irroratus Klug" and "Hadromerus pygalpis Germar" listed by Boheman as *nomina nuda* of his *atomarius* (Boheman, 1840:292); "Hadromerus micronychus Germar" listed by Boheman as *nomen nudum* of his *brachispinosus* [= *togatus* Boheman] (Boheman, 1840:291); "Hadromerus lepidopterus Klug" listed by Boheman as a *nomen nudum* of his *dejeanii* (Boheman, 1840:293); "Hadromerus splendidus Salle" listed by Champion as a *nomen nudum* of his *fulgens* (Champion, 1911:184); and "Hadromerus schonherri Chevrolat" listed by Champion as a *nomen nudum* of his *scintillans* (Champion, 1911:182).

Taxa originally associated with *Hadromeropsis* but which have been subsequently removed include the following:

Hadromerus porosus Boheman, 1840:294, transferred to *Pandeleteius* by Kuschel (1955:280).

Hadromerus tuberculifer Boheman, 1840:295, transferred to *Pandeleteius* by Kuschel (1955:280) then to *Airosimus* by Howden (1966:202).

Pandeleteinus Champion as a subgenus of *Hadromeropsis*, *sensu* Voss (1954:232), reinstated as genus by Howden (1969:76).

Taxa originally associated with *Hadromeropsis* HERE REMOVED from the genus are the following:

Hadromeropsis distinctus Voss, 1954:232 here removed to *Pandeleteius*.
Pandeleteius distinctus (Voss), NEW COMBINATION.

Hadromeropsis griseus Voss, 1954:233 here removed to *Pandeleteius*.
Pandeleteius griseus (Voss), NEW COMBINATION.

MATERIAL STUDIED

This study was based on over 2000 specimens in 35 institutional and private collections. Institutional collections are referred to in the text by the city in which they are located, and private collections by the owner's name.

Institutional collections studied and the persons assisting are as follows:

Auckland	New Zealand Arthropod Collection, DSIR. G. Kuschel.
Basel	Naturhistorisches Museum. W. Wittmer.

Berkeley	California Insect Survey. E. Sleeper.
Berlin	Museum für Naturkunde an der Humboldt-Universität. F. Hieke.
Buenos Aires	Museo Argentino de Ciencias Naturales. M. J. Viana.
Cambridge	Museum of Comparative Zoology, Harvard University. J. Lawrence and M. Thayer.
Chicago	Field Museum of Natural History. H. Dybas and R. Wenzel.
Curitiba	Universidade Federal do Paraná. G. H. Rosado Neto.
Dresden	Staatliches Museum für Tierkunde. R. Hertel and R. Krause.
Eberswalde	Deutsche Akademie der Landwirtschaftswissenschaften zu Berlin. G. Morge.
Hamburg	Universität Hamburg. H. Strümpel.
Ithaca	Cornell University. L. L. Pechuman.
Leiden	Rijksmuseum van Natuurlijke Historie J. Krikken.
London	British Museum (Natural History). R. Thompson.
Los Angeles	Natural History Museum of Los Angeles County. R. Snelling.
Maracay	Universidad Central de Venezuela. F. Fernández-Yepez and L. Joly.
Mexico	Instituto de Ecologia. G. Halffter.
New York	American Museum of Natural History. P. Vaurie.
Ottawa	Canadian National Collection. D. Bright.
Oxford	Hope Department of Entomology. University Museum. E. Taylor and M. W. R. Graham.
Paris	Muséum National d'Histoire Naturelle. H. Perrin.

Pittsburgh	Carnegie Museum. G. Wallace.
Rosario de Lerma	Instituto de Investigaciones Entomologicas Salta, INESALT, Argentina (formerly INESAN, San Miguel). A. Martínez, M. J. Viana, G. J. Williner.
Sacramento	California Department of Food and Agriculture. A. Hardy and T. Seeno.
San Francisco	California Academy of Sciences. H. Leech and D. Kavanaugh.
San José	University of Costa Rica. A. Wille.
São Paulo	Universidade de São Paulo. S. A. Vanin.
Stockholm	Naturhistoriska Riksmuseet. L. Janzon and P. I. Persson.
Tucson	University of Arizona. F. Werner.
Tucumán	Instituto Miguel Lillo. A. Willink.
Washington	United States National Museum of Natural History. D. R. Whitehead.

The following individuals generously loaned material from their private collections:

Henry Hespenheide, Los Angeles, California.
Charles O'Brien, Tallahassee, Florida.
Warren Steiner, College Park, Maryland.
Guillermo Wibmer, Tallahassee, Florida.

In addition, there are specimens in the Henry and Anne Howden collection. Types in our collection are deposited on loan in the Canadian National Collection, Biosystematics Research Institute, Ottawa.

All types were examined, and lectotypes were selected where appropriate.

Old museum specimens are often not duplicated in modern material. In this genus where some species appear to be rare - at least in collections - locality data are often very helpful and internal parts are sometimes essential for identification. When the old specimens have the setae destroyed by psocids and the internal parts consumed by dermestids and psocids, when the locality is incorrect, or incomplete or absent entirely, and when there are no modern specimens that match them, the taxonomist must decide if it is better to ignore the old specimens or include them in the study. In the interest of completeness, I have attempted to include such faulty material in this revision.

METHODS AND TERMINOLOGY

Species related by apparent synapomorphies are assembled into groups. No nomenclatural status is intended for these groups. The characteristics of a group are not repeated in species descriptions except to qualify them.

The Diagnosis gives the optimum number of characteristics which distinguish a species *within the species group*.

Where described species are represented by fewer than 10 specimens, all the information on labels, sex, and collection are given for each specimen. This information is summarized for described species represented by longer series.

Previous authors have used various terms to describe the characteristics of the scales of *Hadromeropsis*. I have used "scintillating," "iridescent," and "metallic lustre" which I distinguish as follows. Scintillating scales are very smooth and flat, like discs of thin metal, uniform in color but each with brilliant green, gold and red reflections. Such scales leave only a faint, pin-prick scar or a marginal scar as well as the central hole and are more easily abraded than iridescent scales. They are found on *scintillans*, *gemmifer*, *dejeanii*, etc.

Iridescent scales are flecked with multiple colors like the iris of the eye or like an opal and may be slightly convex or at least have the edges deflected. Iridescent scales are basically green, blue or white and may be strongly metallic or not. The scar of an iridescent scale consists of the outer perimeter as well as the central hole. Iridescent scales are charactertistic of *fulgens*, *opalinus*, etc. The scales of species in the nominate subgenus can be distinctly categorized as iridescent or scintillating; these distinctions break down in *Hadrorestes* and in the species *earinus*.

A metallic lustre that is not visible with a microscope but is visible macroscopically in a glancing light may be present on species with iridescent scales as in *brevicomus*, or non-iridescent scales as in *nobilitatus* and *fasciatus*.

Setae are of several diverse forms. On the sides of the elytra and the tibiae some species groups may have stiff, dark wiry setae. In the *opalinus* and *scintillans* groups there are erect setae on the dorsal surface. The characteristics of these erect setae are evident only on specimens in very good condition because the setae are prone to matting and the delicate filamentous tips break off readily leaving no obvious evidence of having been there. Shorter and arcuate setae are less vulnerable.

Another type of seta which I refer to as "long, wispy" is particularly noticeable on the prosternum and inner surface of the fore legs and is more highly developed in males than females. A similar but probably not analagous, long, wispy seta occurs often on the base of the elytra and prothorax. Such a "wispy" seta is pale, crinkled, and filamentous apically; when the tip is accidentally broken off, the remaining base resembles an ordinary erect seta. These setae seem to be associated with species with a waxy coating on the dorsum as in many *Hadrorestes* species. This wax conceals details of the sculpture and vestiture. It can be removed by gently stroking the surface with a fine camel hair brush dipped in ammonia solution to soften the wax and then further stroking with the brush frequently rinsed in water to remove the globs of wax. This can be tedious but often completely restores the color of the scales and position of setae without matting as can happen in an ultrasonic cleaner. See incompletely cleaned prothorax in Fig. 239, uncleaned surface in Fig. 240.

The "interantennal line" is a transverse line across the dorsum of the rostrum approximately opposite the insertion of the antennae. In *Hadromeropsis* it is usually unmarked.

The relative length of the segments in the funicle and antennal club are difficult to assess uniformly and have not been used in the descriptions unless they are extreme.

The elytra in most species are approximately 2x longer than their width at the humeri. This measurement is not given in the descriptions unless it differs by more than 0.2x.

Where the tibia rests against the femur the surface of the femur may be slightly smoother and concave (Fig. 257). This is referred to as the "tibial groove," although a groove is not present in many species. The contiguous edges of the tibia and femur are referred to as the "inner edge" and the opposite surface is referred to as the "outer" (Fig. 209). The remaining surfaces are referred to as anterior (Fig. 258) and posterior (Fig. 257) as they are when the leg is held at right angles to the body.

The "distal tooth" refers to the elongation of the extreme inner apical angle of the fore tibia. According to the species, the distal tooth provides many useful characteristics, ranging from short to long and curved, and from simple to divided into two.

To dissect the genitalia, the abdomen was usually removed from the beetle and the contents were treated with hot KOH. In the few cases where specimens recently killed in ethyl acetate were available, no treatment was necessary. For specimens dead several weeks, hot water with a bit of detergent was sufficient treatment before extracting the internal sac. On the other hand, many specimens of the *argentinensis* and *nobilitatus* groups were never softened sufficiently for satisfactory dissections of the male or female genitalia. In these cases I suspect the specimens had been collected or stored in formalin or alcohol which so hardened the tissues that they did not respond to rigorous KOH treatment. After extraction of the genitalia, the abdomen was glued to a paper point on the same pin as the beetle and the contents put in glycerin in a microvial on the same pin.

The aedeagus is relatively conservative in characters. Although it is a heavily sclerotized structure, its dorsum may appear slightly flattened or sunken in dried specimens compared to specimens in glycerin. This is not apparent in the lateral view I used for illustrations.

The internal sac was dissected from every species where it was possible to do so, except species where a flagellum was obviously extending from both ends of the aedeagus. The best technique was to insert a fine, hooked pin a short distance into the apical orifice of the aedeagus in very soft condition. Care was necessary to keep the parts soft with a drop of water during the dissection. Repeated short pulls were more satisfactory than a single deep effort, especially when working with a curved aedeagus. After dissection the internal sac often distended naturally after a day or so in glycerin. Sometimes an air bubble captured in the sac could be manipulated into the various lobes to inflate them.

Because of their extremely long genitalia, males suspected of belonging to the Mexican species flagellatus and dejeanii require a different dissection technique. The most successful dissections of old, dry specimens were obtained by the following procedure: keep specimen in humidor for 12 to 24 hours; lift left elytron and wing out of the way; with razor blade or scalpel slit the metathorax longitudinally to the left of the median line and across to the side; slit or cut integument of abdominal terga at extreme side nearly to apex; with fine brush apply drop of ammonia or warm water to tissues within integument until softened; observe position of genitalia and lift out, or remove entire abdomen after freeing proximal end of genitalia.

Measuring the spermathecal duct is a delicate operation. Measurements of the duct given here should be considered close estimates instead of exact measurements.

Areas of the spermatheca are referred to as in Howden (1976:7-8). The junction of the spermathecal duct with the body of the spermatheca is the nodulus; the junction of the gland with the spermatheca is the ramus; and the apex is the cornu. See Fig. 130.

MORPHOLOGY OF THE MALE AND FEMALE GENITALIA

Three rather distinct types of male and female genitalia are found in the genus. Each type of male genitalia corresponds to an equally distinct type of female genitalia. It is thus possible to examine one sex of a species and predict some characteristics of the genitalia of the other sex.

The genitalia of both sexes are known for only 36 of the 52 species (70%), and there are some anomalies that cannot be explained until both sexes of all species are known. This must be remembered in the following discussion which is based on these incomplete data.

Description of the Types of Genitalia

The first type of genitalia is found in the nobilitatus and argentinensis groups of the nominate subgenus. In the male genitalia of these groups (Figs. 159-180), the internal sac of the aedeagus when everted is seen to consist of a membranous tube with various patches of spicules and inflatable lobes on the proximal portion; a heavily sclerotized internal structure toward the distal end; a dorsal, inflatable, cupped, membranous lobe externally; the whole sac terminating distally in a slightly deflected membranous tube spiculate on the sides but with only a very fine, smooth membrane at the apex. In dorsal or ventral view the internal sclerite* is shaped proximally like a condyle, i.e., like the end of a vertebrate femoral bone; in lateral view, as I have drawn them, this is not particularly evident. Good specific characters are found in the position of the lobes as well as in the additional sclerotization of the distal deflected portion.

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* The proximal end of the internal sclerite is always concealed by membranes, and I was never able to satisfy myself whether one or two sclerites (fused or movable) are involved.

Females of the *nobilitatus* and *argentinensis* groups (Figs. 181-183, 187-190) have a large complex sclerite within the bursa copulatrix, sometimes almost filling the bursa. This sclerite is basically funnel shaped with fins and appears very different at various angles (Figs. 188-190). The vagina (or genital chamber) (Figs. 182, 188) is faintly testaceous and has vaguely sclerotized longitudinal streaks or flat rods its entire length. The spermathecal duct is moderate in length. Below the distal end of the common oviduct is an inflatable membranous cupped lobe.

The second type of genitalia is exhibited in the remaining *H. Hadromeropsis*: the *gemmifer*, *scintillans*, and *opalinus* groups. In the males of these groups the internal sclerite is elongated into a flagellum of various lengths (Figs. 73-108), in its extreme development longer than the beetle itself. The proximal end of the flagellum is always stiff and in extreme forms, such as *flagellatus*, forms a large loop or figure 8 in the mesothorax (Fig. 80). The length of the flagellum is species specific. In addition, the manubrium of the spiculum gastrale, the aedeagal apodemes, and the tegminal strut may be individually or collectively elongated. The relative length of these rods is also species specific. The tegmen is much wider in species with a longer flagellum (Figs. 73, 75, 78). The ejaculatory duct ends distally (the gonopore) in a membrane encasing the proximal end of the ventral portion of the internal sclerite. This junction is readily visible at the anterior end of the aedeagus in species with the flagellum longer than the aedeagus.

The male genitalia of *gemmifer* (Figs. 101-103) are extreme with only a minute, free, needle-like sclerite representing the flagellum. There is also a sclerite on the ventral surface of a sort of dorsal cupped flap. In dorsal and ventral views these two sclerites are very similar in shape to the proximal end of a flagellum. The dorsal cupped lobe of *gemmifer* seems to be homologous with the dorsal inflatable cupped lobe of the *argentinensis* and *nobilitatus* groups. With this in mind, and in view of the location of the gonopore in *gemmifer* (Fig. 102), it seems possible that the gonopore in the *argentinensis* and *nobilitatus* groups is immediately beneath the dorsal inflatable cupped lobe that is located over the proximal end of the internal sclerites, but I was not able to establish this. If this is the case, the large ventral inflatable lobe of *gemmifer* could be comparable to the apex of the internal sac of the *argentinensis* and *nobilitatus* groups.

In females of the flagellate species there is no sclerite in the bursa copulatrix, nor any sclerotization of the vagina. The length of the spermathecal duct is proportionate to the length of the flagellum and is species specific*. The basic or unmodified length of the spermathecal duct is 1-1.5 mm in the nominate subgenus.

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* This is not unique to *Hadromeropsis*. Thompson (1977:196) showed

(next page)

In the new subgenus Hadrorestes, an abruptly different modification of the apex of the internal sac and a gradual change in the internal sclerites constitute the third type of male genitalia. In the alacer group (Figs. 310-316) the internal sclerite is condyle-shaped proximally as in the argentinensis and nobilitatus groups of the nominate subgenus, but the distal end of the internal sac instead of being a thin membrane is sclerotized in the form of a short, slightly spiculate tube which is always curved and directed ventrad. The membranous parts of the internal sac are usually only faintly spiculate. The genitalia of exilis (Fig. 366) resembles that of the alacer group, but the sclerotized distal end is straight and directed distad, the membranous tube is simple and has two distinct patches of spicules, and the proximal end of the internal sclerite is evanescent and not condyle-shaped. In impressicollis (the only male representative of its group of four species) the sclerotized distal end of the internal sac is almost straight and directed distad; the condyle-shaped proximal end of the internal sclerite has a small dorsal elongation (Figs. 317, 319). In the remainder of Hadrorestes (Figs. 320-334) the internal sclerite at the proximal end is enlarged and acutely angled, and the distal end of the internal sac is finely spiculate, at least moderately sclerotized, curved, and directed dorsad.

Females of Hadrorestes (Figs. 336-348, 350-357) have no sclerotization in the vagina and inside the bursa have no complex funnel-shaped structure, but there may be a small, faint cup, ring, arc, or plate at the junction of the spermathecal duct. The ventral inflatable cupped pouch is larger and tougher than in the other groups; the ends of this inflatable pouch are attached to a pair of lateral sclerites, and this constitutes the third type of female genitalia. The caudal end of the common oviduct was occasionally seen to also be connected to the lateral sclerites. To study the female genitalia more thoroughly, it would be necessary to stain them. These lateral sclerites are somewhat variable in size and shape intraspecifically; they are absent in cavifrons (male unknown) and are presumed to be secondarily lost in that species.

Intraspecific Variation in Genitalia

Variation in the genitalia is incorporated in the species descriptions and remarks, but the following female parts warrant special note.

The spermatheca varies greatly in some species. Four examples of the spermatheca of nobilitatus are shown in Figs. 191-194. Three examples of variation in the spermatheca of excubitor are shown in Figs. 196-198.

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that in Apirocalus (Otiorhynchinae, Celeuthetini) the length of the flagellum was "reflected in the length of the spermathecal duct of the females". Sharp (1918: Pl.IX, fig. 7; 1920:76) made similar observations on Celeuthetini.

In *H.* (*Hadrorestes*) *spiculatus* the spermathecal duct of the allotype (Fig. 357) is highly modified, but the only female paratype of this species has a normally slender duct. *See* Remarks on the species.

The lateral sclerites of the vagina of *Hadrorestes* vary in detail intraspecifically, as noted in previous section. Two examples of the lateral sclerite of one species are shown in Fig. 354.

In the subgenus *Hadrorestes* where a distinctive bursal sclerite is apparently not indicated by the morphology of the male genitalia, the bursal sclerite is variable in development intraspecifically. An extreme example is *cavifrons* where a large disc is present in the bursa copulatrix of one specimen but absent in the other.

Interpretations of Male and Female Genitalia

The implications of the morphology of the corresponding male and female genitalia are: a) in the flagellate species the flagellum enters the spermathecal duct which is an appropriate corresponding length; this would bring the gonopore into close proximity with the bursa; b) in *Hadrorestes* the tough, strongly supported pouch below the common oviduct accomodates either the dorsal spiculate lobe or the acutely angled internal sclerite, anchoring it while the distal end enters the bursa copulatrix; this would bring the gonopore into close proximity with the spermathecal duct in the bursa; c) in the *nobilitatus* and *argentinensis* groups, the faintly sclerotized vagina withstands the heavily spiculate proximal portion of the internal sac, the cupped lobe beneath the common oviduct does not need the extra reinforcement provided by lateral sclerites to receive the dorsal cupped lobe of the internal sac, and the funnel-like receptacle within the bursa copulatrix is of an appropriate design for the broad, expandable spiculate sides of the distal extension of the internal sac.

Thus, if the gonopore must be brought into proximity with the spermathecal duct in the bursa copulatrix to effect fertilization, then the morphology of the genitalia gives visual evidence of a possible reproductive isolating mechanism. At the very least the morphology of the male and female genitalia of *Hadromeropsis* has proved to be very useful in associating the sexes of dimorphic species as well as in relating species sometimes represented by only one sex when the external properties of those species are variable and sexually dimorphic.

BIOLOGY

The 15 species of *Hadromeropsis* which colleagues and I have collected and observed were all diurnal. Three species are brachypterous, but of the fully winged species at least *superbus*, *alacer*, and *pectinatus* were observed to be strong, fast fliers.

Many species in the nominate subgenus were taken on trees or shrubs of species of Leguminoseae, but not exclusively. Species in the subgenus *Hadrorestes*, which occurs in the Andes outside the range of most of these Leguminoseae, were taken on alder, grass, bamboo, and miscellaneous unidentified plants. There was evidence of adult food preference but not of specificity.

It is presumed the larvae are general root feeders. Bruch (Hayward, 1960:18) reports the larvae of argentinensis attacking "los espinelles" (Acacia caven (Mol.) and Mimosa scabrella Benth.).

There was physical evidence of predation on eight specimens of Hadrorestes but in only six specimens of the much more common nominate subgenus. Possibly the species with thinner integument or slower movements were consumed outright by the predator whereas the very hard or faster species escaped with only a cracked or nipped elytron. See Remarks under Hadrorestes.

Genus Hadromeropsis Pierce

Hadromerus Schoenherr, 1834:127. Type-species Hadromerus nobilitatus Gyllenhal, in Schoenherr, 1834:128, by original designation.

Hadromeropsis Pierce, 1913:400. Replacement name for Hadromerus Schoenherr, 1834, nec Hadromerus Schoenherr, 1823.

Diagnosis.-Small to large, 5 to 20 mm in length. Scales never sculptured. Posterior margin of epistoma never carinate or keeled, although margin elevated distally in a few species. Mandible with vestiture of lateral and ventral surface similar to that of rostrum. Pronotum never produced anteriorly over vertex. Female with caudal surface of ventrites 2, 3, and 4 conspicuously elevated, often perpendicular or slanted anteriorly or posteriorly, edge of caudal surface usually sharply delimited; character less developed in male.

Description.-Glabrous, squamose, or with both squamose and glabrous areas arranged in a pattern. Scales with or without metallic lustre, in many species strongly iridescent or scintillating. In lateral view ventral surface of rostrum almost as long as dorsal surface. Rostrum with interantennal line faintly marked at most. Scar of mandibular cusp not situated on a process of the mandible. Anterior constriction of prothorax absent dorsally in most species. Fore leg larger than other legs; fore femur of male often greatly enlarged (1.3-2.7x wider than hind femur) and often with a flange on inner edge distally, flange situated anterior to tibial groove, surface posterior to tibial groove at most weakly modified; fore femur of female less modified. Fore coxae narrowly separated, the separation sometimes concealed by the convex inner surface of coxae. Hind tibia with corbel open. Inner surface of elytra with well-developed apical carina between suture at end of interlocking flange and side at apex of epipleural fold. Last tergite of male simple.

Remarks.-The larger size, smooth scales, and presence of scales on the mandible distinguish Hadromeropsis from Pandeleteius which is probably the most closely related New World genus. Airosimus Howden differs from Hadromeropsis in the presence of a "platform" on the apex of the rostrum, the ventral surface of rostrum much shorter than the dorsal surface, and the hind corbels semi-enclosed. The South American Macropterus Schoenherr is the only other New World Tanymecini with which Hadromeropsis might be confused. Macropterus has a thin integument, extremely elongate elytra and ventrites 1 and 2, and lacks the apical carina on the inner surface of the elytra.

The African *Hadromerus* differs from *Hadromeropsis* in the following characters: mandibular scar situated on a process of the mandible; prothorax with basal constriction adjacent to the perpendicular margin; elytra very narrow across base which is perpendicular and has the edge carinate. *Hadromerus* shares the following characters with *Pandeleteius* but not with *Hadromeropsis*: scales sculptured; inner edge of fore femur in some species distally modified with spur or teeth on posterior side of tibial groove; last tergite of male variously modified with carina or concavity.

The antennal scape of *Hadromeropsis* reaches the eye or exceeds it (especially in the subgenus *Hadrorestes*) but does not reach the prothorax (except *striatus*). The length of the scape is useful in field recognition of similarly sized species of Naupactini with enlarged fore legs, such as *Naupactus* and *Macrostylus*.

Three brachypterous species of *Hadromeropsis* are described from uniques, two from males and one from a female. The proportions of the elytra and prothorax look wrong for the genus, but this is a consequence of brachyptery. In all three the wing is only 0.6-0.7x as long as the elytra, the elytra are very narrow across the humeri, the apical umbone is absent (elytra flat at the apical termination of striae 4-6), and the mesepimeron is very narrow.

The spiculum gastrale and the spiculum ventrale are conservative in form and only one example of each is figured in Figs. 111 and 349 respectively.

In some males I observed a pair of very small sclerites (Fig. 109) set on a flexible stalk arising from the first connecting membrane between the spiculum gastrale and the 8th sternites. These sclerites are apparently the same as "spicule plates", *sensu* Gilbert (1952:636; Clark, 1977:105). The sclerites were very similar in all species but not all were surveyed for this character.

All species examined have a rectal ring (Fig. 172).

The gender of *Hadromeropsis* is masculine since the ending "opsis" is adjectival and modifies the masculine noun "Hadromerus."

Key to the Species of *Hadromeropsis*

1. Occurring in South America. 2
Occurring in Panama and northward. 48

2. Eye flattened, scarcely exceeding outline of head. Prothorax in dorsal outline strongly rounded on sides, much wider than long (Fig. 2). Elytra clothed with patches of flat, imbricate, green or lavender scales alternating with irregularly placed rectangular glabrous areas. Length 7.5-9.5 mm. Argentina. . . . . 13. *superbus* (Heller)
Eye convex. Prothorax with sides less strongly rounded. Elytra not so patterned. 3

3(2) Eye small (Fig. 289). Pronotum (Fig. 290) flattened, surface irregularly sculptured. Base of elytra between striae 5 abruptly perpendicular and slightly anteriorly produced. Male unknown. Length 13 mm. Ecuador . . . . 51. earinus n. sp.

Eye larger. Pronotum not so sculptured. Base of elytra rounded. 4

4(3) Brachypterous, wing only 0.6-0.7x length of elytron. Mesepimeron very slender (Fig. 226). Elytra without apical umbone, i.e., flat at apical termination of striae 4 to 6. 5

Wing much longer than elytron. Mesepimeron normal (Fig. 225). Elytra usually with distinct apical umbone. 7

5(4) Elytra with intervals conspicuously convex; striae distinct, straight, strial punctures large. Female unknown. Colombia . . . 52. striatus n. sp.

Elytra with intervals not convex; striae indistinct or confused, strial punctures small. 6

6(5) Elytra without tubercles. Disc of prothorax smooth, sides of prothorax with obsolete tubercles. Clothed with large scintillating green scales. Female unknown. Bolivia . 32. exilis n. sp.

Elytra and prothorax with crowded, small, uniform tubercles. Clothed with small white setae and seta-like scales. Male unknown. Locality unknown. . . . . .36. brachypterus n. sp.

7(4) Dorsal surface densely clothed with scales of one color, the only pattern (if any) formed by shiny, bare areas confined to elytral intervals between distinct striae, forming random dark spots; or if entirely glabrous (some gemmifer) with distinct tubercle on fore coxa. Vestiture of male like that of female. Elytral margin always smooth around ventrite 5. Many species with a tubercle on inner distal edge of fore coxa opposite trochanter (Figs. 57, 58). 8

Dorsal surface glabrous or squamose. If clothed with scales of one color, then usually striae not evident or bare areas forming a fasciate or other pattern. Males often glabrous, females squamose or colored differently. Elytral margins smooth, tuberculate, or denticulate around ventrite 5. Never with a coxal tubercle. 12

8(7) Rostrum relatively long and narrow, 1.4-1.6x longer than wide (Fig. 63). Male fore femur at distal end with ventral margin expanded into a flange (Fig. 65). Scintillating green. Bolivia (Pando), Brazil (Amazonas, Pará), Peru. . . . . 16. *batesi* n. sp.

Rostrum moderate in width and length, usually less than 1.2x longer than wide (Figs. 55, 56). Male fore femur unmodified distally. Scintillating green or not. 9

9(8) Prothorax in dorsal outline strongly rounded on sides, much wider than long (Fig. 49). Unicolorous white (mature specimens) or slightly yellowed (teneral specimens). Length 11-14 mm. Bolivia. . . . . . 10. *aureus* (Blanchard)

Prothorax in dorsal outline not strongly rounded on sides. Seldom white. 10

10(9) Anterior edge of rostrum at margin of epistoma produced upwards and outwards (Fig. 156). Elytral interval 9 with the glabrous spots tuberculate. Fore tibia in end view (Fig. 154) with a ventral lobe as long as the distal tooth. Brazil . . . . 23. *beverlyae* n. sp.

Anterior edge of rostrum not produced. Elytral interval 9 with glabrous spots not elevated. Fore tibia in end view with ventral lobe absent or much smaller than the distal tooth. 11

11(10) Female with apex of ventrite 5 emarginate (Fig. 59). Aedeagus longer, 3.1-4.2 mm, with a short endophallic structure (Figs. 101, 102). Elytra of male with sides tapering from humeri. With a glabrous black form (mostly males). Guatemala to northern Colombia and northern Venezuela . . . . 14. *gemmifer* (Boheman), in part

Female with apex of ventrite 5 rounded (Fig. 60). Aedeagus shorter, 2.4-3.0 mm, with flagellum as long as aedeagus (Figs. 104, 105). Elytra of male with sides not tapered from humeri. Colombia (Cundinamarca, Tolima) . . . 15. *meridianus* n. sp.

12(7) Striae 9 and 10 contiguous, confused or otherwise indistinct beneath apical umbone; if condition uncertain, then with long, wispy setae across base of elytra and usually with tubercles or denticles around apex of elytra. Occurring in the Andes, including the Sierra Nevada de Santa Marta. . . . . subgenus *Hadrorestes* . . 23

Striae 9 and 10 separated, distinct beneath apical umbone; never with long, wispy setae on base of elytra, only *fasciatus* with distinct tubercles around apex of elytra. Occurring in South America other than in the Andes. 13

13(12) Epistoma wider than long, occupying approximately

0.5 of anterior edge of rostrum (Fig. 149). Size small, length 5.0-8.0 mm. Strial punctures often foveate, especially in male. Brazil (Minas Gerais). . . . . . . 20. *pulverulentus* n. sp.

Epistoma as wide as or (more frequently) longer than wide, occupying 0.2-0.4 of anterior edge of rostrum. Length 4.5-16.5 mm. Strial punctures not foveate. 14

14(13) Edge of elytra around ventrite 5 with distinct acute setiferous tubercles when viewed from above (Fig. 157). Fore femur without distal flange. Rostrum of female with distinct pterygia (Fig. 158), apex of rostrum also produced slightly in a flange on either side of epistoma, epistoma thus long and narrow and anterior edge of rostrum bisinuate. Elytra with a complete postmedian dark fascia (Fig. 27), very conspicuous in female and often appearing to be composed of three contiguous diamonds; male with blue or green scales, fascia weak, outlined in white. Length 9.2-16.5 mm. Southeastern Brazil. . . . . 27. *fasciatus* (Lucas)

Edge of elytra around ventrite 5 smooth when viewed from above, or if appearing somewhat tuberculate or crenulate, then without all above remaining characters. 15

15(14) Fore femur with distinct (but very weak in some females) distal flange when viewed from behind. Elytra with tubercles on lateral intervals usually distinct in dorsal view. With metallic lustre of gold or red. Fore tibia abruptly bowed inwardly at distal fourth (Fig. 1). . . . 16

Fore femur without distal flange or swelling above tibial groove when viewed from behind. Elytra with or without tubercles on lateral intervals. With or without a metallic lustre. Fore tibia straight or slightly curved inwardly distally. 17

16(15) Male with distal tooth of fore tibia as long as width of tibia at apex. Female with distal tooth of fore tibia single, 0.5x as long as width of tibia. Apex of elytra of male produced into a brief divergent tooth. Length of male 7-8.6 mm, female 7.5-10.7 mm. Southeastern Brazil and adjacent Argentina. . . . . 24. *nobilitatus* (Gyllenhal), in part

Male with distal tooth of fore tibia 0.5x as long as width of tibia (Fig. 141). Female with a pair of distal teeth on fore tibia, the most distal tooth equal to or shorter than the second (Fig. 142). Apex of elytra of male not at all produced. Length of male 8.2-10.5 mm, female 9.4-12.8 mm. Brazil (Rio de Janeiro, Santa Catarina). . . . . 26. *excubitor* n. sp.

17(15) Large, length of male 9.5-11.4 mm; female 11-14.2 mm. Elytra without tubercles. Elytra of female with anchor-shaped dark or glabrous area (Fig. 13). Elytra of male green, blue, or tan with pattern of female faintly marked with white. Southeastern Brazil and Paraguay. . . . . 17. *togatus* (Boheman)

Smaller, length of male less than 9 mm, of female less than 10.7 mm. Elytra with or without tubercles, not patterned as above. 18

18(17) Dorso-lateral edges of rostrum poorly defined, broadly rounded (Fig. 151). Argentina (Misionés), Brazil (Minas Gerais), Paraguay, Uruguay . . . . 21. *pallidus* n. sp.

Dorso-lateral edges of rostrum distinct. 19

19(18) Elytra short and thick, convex in profile, declivity almost perpendicular, apical umbone absent (Figs. 7-10). Elytra with a large dark postmedian spot on intervals 5, 6, and 7; without metallic lustre. Northern Argentina, Brazil (Santa Catarina), Paraguay, Uruguay. . . . . 18. *argentinensis* (Hustache)

Elytra not shaped as above. If elytra with a dark postmedian spot, then also with either glabrous tubercles on apical umbone or with a distinct golden lustre. 20

20(19) Elytra with some glabrous setiferous tubercles on apical umbone and usually on declivity and lateral intervals as well. Without metallic lustre. Color pattern similar to that of *argentinensis*. Brazil (Paraná, Santa Catarina, São Paulo). . . . . 19. *plebeius* n. sp.

Elytra without distinct tubercles, but glabrous spots may be slightly convex. With or without metallic lustre. 21

21(20) Female ventrite 4 with caudal margin straight in ventral view, arcuate in caudal view (Fig. 143). Elytra of male long and flat in profile. Fore tibia almost straight, only weakly curved inward distally (Fig. 140). Brazil (Minas Gerais), Santa Catarina, São Paulo). . . . . . 22. *speculifer* n. sp.

Female ventrite 4 with caudal margin pointed medially (Fig. 155). Elytra of male shorter, more convex. Fore tibia distinctly bowed inward distally (Figs. 1, 144). 22

22(21) With distinct golden lustre. Ventrite 5 of female medially smooth and polished, without scales. Southeastern Brazil and adjacent Argentina. . . . . 24. *nobilitatus* (Gyllenhal), in part

With metallic lustre absent or very faint. Ventrite 5 of female with scales evenly distributed or sparser medially (Fig. 155). Brazil (Minas Gerais) . . . . 25. *atomarius* (Boheman)

23(12) Scales when present very elongate, seta-like; scutellum conspicuously clothed with dense white elongate scales. Pronotum usually with a shallow depression on each side and a median depression as well. 24

Scales when present rounded in shape; scutellum glabrous or variously clothed. Pronotum without both a pair of lateral depressions and a median depression (except some *pectinatus*). 26

24(23) Head and rostrum with a shagreened microsculpture and scattered very fine punctures, the only other sculpture being a frontal fovea (Fig. 222). Ventrite 5 of female flat. Male unknown. Peru (Huánuco) . . . . 35. *bombycinus* n. sp.

Head and rostrum not sculptured as above. Ventrite 5 of female longitudinally convex apically. 25

25(24) Female with elytra (Figs. 215, 218) abruptly constricted beneath apical umbone, then flared outward in a prominent flange. Sculpture of rostrum and frons consisting of short, irregular rugae (Fig. 216). Male unknown. Ecuador . . . . 34. *institulus* n. sp.

Female with elytra (Fig. 214) gradually tapered apically. Sculpture of rostrum and frons consisting of long, longitudinal rugae curving around frontal fovea (Fig. 210). Colombia. . . . . 33. *impressicollis* (Kirsch)

26(23) Rostrum with extreme hemispherical concavity exaggerated by keeled dorso-lateral edges (Figs. 282, 283). Size large, length 15.8-17.4 mm. Peru. . . . . 50. *cavifrons* n. sp.

Rostrum not so modified. Size small to large. 27

27(26) Large, length 11-20 mm. Punctures of elytra not aligned in striae and with many extra punctures of the same size. Fore tarsus with segment 2 much wider distally, abruptly tapered proximally (Figs. 302, 304, 306, 309). Eye separated from anterior margin of prothorax by its own diameter or more, thus forming a slight neck. 28

Smaller, length 7.6-16 mm. Punctures of elytra arranged in straight striae, usually without extra punctures. Fore tarsus with segment 2 narrower distally, gradually tapered (Figs. 305, 307, 308). Eye closer to prothorax. 31

28(27) Pronotum slightly, evenly convex, without lateral flattened or depressed area. Elytral punctures very small in glabrous areas (Fig. 206). Glabrous specimens with vitta on lateral edge of metasternum of dense, imbricate white scales. Female with apex of elytra broadly rounded-truncate; ventrite 5 with deep lateral fovea. Sutural interval at summit of declivity without long, erect setae in either sex. Colombia. . . . . 31. *silaceus* n. sp.

Pronotum with lateral flattened or depressed area. Elytral punctures larger, sometimes foveate. Glabrous specimens never with concentration of scales along side of metasternum. Female with apex of elytra slightly produced, sutural interval attenuate into a brief tooth; ventrite 5 flat or convex laterally. Sutural interval at summit of declivity with long erect setae in all females and in males of *alacer* and *inconscriptus* 29

29(28) Elytra sparsely (male) or more densely (female) (Fig. 205) clothed with rounded white and pale colored scales, both sexes with a vague postmedian "V" outlined in larger, paler scales; some specimens with metallic green scales ventrally. Female with, male without long erect setae at summit of declivity. Colombia (Sierra Nevada de Santa Marta) . . . . 30. *nebulicolus* n. sp.

Elytra of male and sometimes female with only minute scales, no pattern; appearing glabrous to naked eye. Female and male with long erect setae at summity of declivity. 30

30(29) Setae of disc of elytra conspicuous, 2x longer than the diameter of a fovea (Fig. 204). Both sexes with minute scales only. Spermatheca very long and contorted, as in Fig. 339. Peru . . . . 29. *inconscriptus* n. sp.

Setae of disc of elytra as long as one fovea (Fig. 203). Both sexes with minute scales only or female with larger ochraceous scales forming a pattern with 1, 2, or 3 dark fasciae. Spermatheca as in Fig. 336. Colombia, northern Ecuador . . . . 28. *alacer* n. sp.

31(27) Apical umbone of elytra prominent in dorsal outline (Figs. 259, 260), set with acute tubercles each bearing a short, curled seta. Dorsal surface nowhere with long, wispy setae or erect setae except at summit of declivity. Black with sparse minute green scales or covered with full sized iridescent green scales with a pattern of glabrous black fasciae. Ecuador. 32

Without all the above characteristics. Ecuador or not. 33

32(31) Fore tibia (Fig. 258) almost cyclindrical, smooth, nearly impunctate, with a few fine recumbent pale setae. Fore tibia straight or nearly so. Fore femur of male (Fig. 257) enormously swollen, with tubercles above and below tibial groove. . . . 43. *conquisitus* n. sp.

Fore tibia (Fig. 262) with confluent punctures and rugulae, with numerous dark wiry hairs or setae. Fore tibia distinctly bowed distally. Fore femur of male with distal flange weak, without tubercles except minute ones on flange . . . . 44. *scambus* n. sp.

33(31) Prothorax (Fig. 266) with very uniform, rounded, evenly distributed tubercles. Male: posterior face of fore femur with 6 or more well-developed shelf-like tubercles; fore tibia with 3 or more extremely long teeth (Fig. 267). Female: caudal surface of ventrites 2, 3, and 4 rugulose (Fig. 269, 270). . . . . . 42. *pectinatus* n. sp.

Prothoracic sculpture various, not as above. Male with or without shelf-like tubercles on posterior face of fore femur; teeth of fore tibia smaller, more nearly uniform in size. Female with caudal surface of ventrites 2, 3, and 4 smooth and shiny (finely sculptured in *contractus*) 34

34(33) Pronotum broadly flattened (Figs. 271, 288). Base of elytra with long, wispy setae. 35

Pronotum not broadly flattened, may be concave or narrowly depressed along median line. Base of elytra with or without long, wispy setae. 36

35(34) Elytra long and slender, in male 2.2x longer than width across humeri (Fig. 38), in female 2.4x longer than width across humeri. Fore femur of male 2.4x, of female 1.2-1.4x wider than hind femur; distal flange distinct, its edge denticulate . . . . 48. *spiculatus* n. sp.

Elytra shorter and broader in female (Fig. 31) (male unknown), 2.2-2.3x longer than width across humeri. Fore femur 1.2x wider than hind femur; distal flange obsolete, not denticulate. . . . . 49. picchuensis n. sp.

36(34) Males. 37
Females. 42

37(36) Posterior face of fore femur with shelf-like tubercles. Basal third of elytral interval 10 with setiferous tubercles approximately as large as the punctures of adjacent striae 9 and 10. Posterior half of hind coxa covered with rounded scales. Venezuela. . . . . 40. dialeucus n. sp., in part
Posterior face of fore femur smooth, without tubercles. Basal third of elytral interval 10 smooth or almost, setae arising from smooth surface, punctures on basal third of striae 9 and 10 often large or even foveate. Hind coxa with some rounded scales or not. 38

38(37) Disc of elytra smooth and polished, with large white scales densely clustered to form three spots (Fig. 36). Mesepisternum densely covered with large white scales (prone to abrasion). Elytral interval 10 opposite metasternum wider than adjacent interval 9 (Fig. 251). Colombia . . . . 45. magicus (Pascoe), in part
Disc of elytra with minute scales assembled in brief, transverse depressions (depressions present whether scales abraded or not); without large scales. Elytral interval 10 opposite metasternum not conspicuously wider than adjacent interval 9 except briefly in mandibularis. 39

39(38) Small, length 7.6 mm. Fore femur very slender, as wide as rostrum. Pronotum (Fig. 238) with distinctly impressed median line. Ecuador. . . . . 38. nanus n. sp.
Larger, length 8.5-11.7 mm. Fore femur enlarged, 0.3 or more wider than dorsum of rostrum. Pronotum with or without distinctly impressed median line. 40

40(39) Pronotum (Fig. 234) with median line deeply, broadly impressed, ending in distinct basal and apical constrictions. Size smaller, 8.5-10.5 mm. Ecuador. . . . . 37. transandinus n. sp., in part
Pronotum with median line unmarked, apical constriction unmarked dorsally. Size larger, over 11 mm. 41

41(40) Elytra in dorsal view with sides gradually tapered from about middle to apex. Elytra in cross section convex dorsally. Apices of elytra almost vertical, only very briefly individually rounded (Fig. 241). Ecuador. . . . . . 46. nitidus n. sp., in part

Elytra in dorsal view with sides parallel or nearly so to apical umbone. Elytra in cross section flattened dorsally. Apices of elytra oblique, broadly individually rounded (Fig. 247). Colombia . . . . 47. mandibularis n. sp., in part

42(36) Mesepisternum with large, rounded white scales. Elytra smooth and polished between conspicuous white markings, interval 2 densely squamose forming a vitta from base to summit of declivity. Colombia. . . . . 45. magicus (Pascoe), in part

Mesepisternum never with large white scales. Elytra variously patterned, never with a vitta on interval 2. 43

43(42) Ventrite 5 (Fig. 278) with very deep lateral depression. Ventrites 3, 4, and 5 much narrower than ventrites 1 and 2; edges of elytra likewise rather abruptly convergent (Figs. 37, 277). With white fasciae on elytra. Bolivia . . 41. contractus n. sp.

Ventrite 5 with surface not depressed below lateral edge. Ventrites 3, 4, and 5 gradually narrowed to apex; edges of elytra gradually convergent. Elytra with or without white markings. 44

44(43) Dorsal outline of elytra serrulate from acute tubercles of intervals 8 and 9, apical umbone, and apex (Fig. 279). Posterior half of hind coxa covered with rounded scales. Elytra with minute white or blue scales in transverse depressions, also usually marked with larger white scales in a maximum pattern of basal ring, median and apical fasciae (Fig. 28). Venezuela . . . . 40. dialeucus n. sp., in part

Dorsal outline of elytra serrulate on apical half at most. Hind coxa without rounded scales. Elytra not so patterned. 45

45(44) Elytra marked with two long, white, elliptical loops. Elytra shorter, 3.6x longer than prothorax. Colombia. . . . . . 46. nitidus(?) n. sp., in part

Elytra without white markings. Elytra longer, 3.8-4.0x longer than prothorax. Colombia, Ecuador. 46

46(45) Pronotum medially not depressed, surface rather smooth with punctures (Fig. 245). Mandible with deep, sharply defined transverse dorsal groove (Fig. 244). Length 16.2 mm. Colombia . . . . 47. *mandibularis* n. sp., in part

Pronotum medially depressed or flattened, median line with transverse sculpture. Mandible with dorsal setae not set in groove. Length 11.0-11.5 mm . . 47

47(45) Elytra with an aeneous lustre. In profile apex of elytra dorsad of apical umbone. Occurring at 3200 m. Ecuador. . . . . 39. *apicalis* n. sp.

Elytra shiny black without metallic lustre. In profile apex of elytra ventrad of apical umbone (Figs. 231, 232). Occurring at 1500-2000 m. Ecuador. . . . . 37. *transandinus* n. sp., in part

48(1) Fore tibia straight (Figs. 66-68). Scales iridescent or not, never scintillating (as defined in Introduction). 49

Fore tibia curved inward distally (Figs. 69-72). Scales scintillating or not. 52

49(48) Eye large and only feebly convex (Figs. 40, 42). All dorsal setae both sexes erect, long, dense. Mexico (Michoacan) . . . . 3. *crinitus* n. sp.

Eye more convex. Setae of elytra erect; setae of prothorax and head erect or not. 50

50(49) Very uniformly and densely clothed; scales of elytra not overlapping; discrete or contiguous. Glabrous spots not larger than one scale. Mexico (Morelos to Chiapas). . . . . 2. *fulgens* (Champion)

Scales more irregularly distributed; scales of elytra overlapping in some areas or with larger glabrous areas or both. 51

51(50) Fore femur without distal flange. Postocular vibrissae lacking or very poorly developed. Setae of head and prothorax not erect in either sex. North of Tropic of Cancer in Mexico (Durango, Sonora, and Zacatecas) and U.S.A. (Arizona). . . . . 1. *opalinus* (Horn)

Fore femur with brief but distinct distal flange, often with small shiny granules on edge of flange. Postocular vibrissae moderate. Setae of head and prothorax erect in both sexes. Mexico (central highlands). . . . . . 4. *flagellatus* n. sp.

52(48) Fore coxa with a tubercle on inner distal edge opposite trochanter (Figs. 57, 58). Prothorax with low tubercles on sides. Ventrite 5 of female distinctly notched at apex (Fig. 59). Guatemala, to northern Colombia and northern Venezuela . . . . 14. *gemmifer* (Boheman), in part

Fore coxa without a tubercle on inner distal edge. Prothorax usually without tubercles. Ventrite 5 of female rounded. 53

53(52) Densely clothed with imbricate pure white scales; elytra with sparse (8-10 per interval) glabrous spots not at all elevated and nowhere with tubercles (Fig. 52). Base of elytra arcuate between striae 5. Length 10.0-12.5 mm. Panama (Chiriquí), Costa Rica. . . . . 11. cretatus (Champion)

Usually clothed with scintillating or iridescent, colored scales. If clothed with white scales (occasional amoenus, brevicomus, dejeanii, and scintillans), scales with some opalescence or iridescence under magnification. Base of elytra usually straight. 54

54(53) Female over 13 mm in length (male unknown). Costa Rica, Guatemala. 55

Female usually less than 10 mm in length, male under 9.5 mm. 56

55(54) Ventrite 5 flat, glabrous medially. Elytra with a vitta on interval 4 from base to summit of declivity and a vitta on interval 8 continuous with one on prothorax; vittae formed of larger, overlapping scales. Costa Rica. . . 12. rufipes (Champion)

Ventrite 5 convex, evenly squamose. Scales of elytra all of one size, not forming a pattern, except of random glabrous spots gradually diminishing in size from base to apex. Guatemala. . . . . 8. micans (Champion)

56(54) (Examination of genitalia may be necessary for positive identification of next four species). Setae of disc of prothorax both sexes short (as long as 1-1.5 scales), appressed. Elytra shorter; in male 2.5-2.7x longer than prothorax, in female 2.8-3.2x longer than prothorax. 57

Setae of prothorax both sexes longer (as long as 1.5-6.0 scales), not appressed, usually erect. Elytra longer; in male 2.7-3.1x longer than prothorax, in female 3.1-3.7x longer than prothorax. 58

57(56) Scales scintillating green, sometimes with iridescent scales interspersed. Elytral glabrous areas evenly distributed. Mexico, usually north of Isthmus of Tehuantepec. . . . . 5. dejeanii (Boheman)

Scales iridescent green, often with golden or coppery sheen in reflected light, or white (one female). Elytral glabrous areas largest on intervals 1, 2, and 3, often coalescing to form short, sinuous fasciae. Mexico (Chiapas) . . 9. *brevicomus* n. sp.

58(56) Flagellum shorter than aedeagus, 1.3-2.0 mm long
(Figs. 84-86). Spermathecal duct 1.5-2.1 mm
long. Occurring in Mexico north of Isthmus of
Tehuantepec. . . . . 6. *amoenus* n. sp.
Flagellum measured within aedeagus 4.1-6.0 mm
(Figs. 87-89). Spermathecal duct 4.3-7.0 mm.
Occurring in Guatemala and Mexico south of
Isthmus of Tehuantepec. . . . . . 7. *scintillans* (Champion)

Subgenus *Hadromeropsis*, new status

Hadromeropsis Pierce, 1913:400. Type-species, *Hadromerus nobilitatus* Gyllenhal, by original designation.

Diagnosis.-Clothed with scales (except some *gemmifer* glabrous). Color pattern of male similar to that of female or not. Prothorax more or less evenly convex, never with depressions and elaborate sculpture as in many *Hadrorestes*. Elytra with apical edge around ventrite 5 smooth or weakly tuberculate (*nobilitatus* group). Striae 9 and 10 discrete, usually well-separated below apical umbone. Internal sac of aedeagus in the form of a membranous tube with lobes and patches of spicules on the surface and internally with sclerites; in some groups membranous tube variously reduced and internal sclerites in the form of a flagellum. Female never with paired sclerites in vagina caudad of bursa copulatrix; spermatheca in one plane or nodulus slightly angled (*fasciatus*).

Remarks.-The species assigned to this nominate subgenus on morphological characters occur from Arizona in the United States to Argentina, and usually not in the Andes. Exceptions are *aureus*, which occurs in semi-tropical mountain valleys of Bolivia at elevations up to 1500 m, and two species of the *gemmifer* group, *gemmifer* and *meridianus*, which occur in the Andes of Colombia and Venezuela at elevations up to 1800 m.

The *opalinus* Group

1. *opalinus* (Horn)
2. *fulgens* (Champion)
3. *crinitus* n. sp.
4. *flagellatus* n. sp.

Characteristics of Group.-Scales iridescent or not, never scintillating. Without a sharply defined color pattern. Without tubercles or pustules on prothorax or elytra. Setae of elytra uniform or of randomly varying lengths, not conspicuously longer on alternate intervals. Fore femur with distal flange of inner edge weak to moderate in *flagellatus*, weak or absent in others. Fore tibia straight (Figs. 66-68), distal tooth weak. Endophallic structure a flagellum (but not known for *crinitus*); ring of tegmen wide (except *crinitus*). Female genitalia without bursal sclerite; spermathecal duct proportionate in length to that of flagellum.

Remarks.-These are the northernmost representatives of the genus, ranging from the Isthmus of Tehuantepec to Arizona.

In this group the flagellum reaches its maximum development (flagellatus) and the postocular vibrissae their maximum reduction (opalinus).

1. Hadromeropsis (Hadromeropsis) opalinus (Horn)

Figs. 39, 67, 74-76, 112, 153; Map 1

Hadromerus opalinus Horn, 1876:85. Champion, 1911:183. LECTOTYPE, HERE DESIGNATED, male, labelled "Ariz. 49," "Type 326" (Cambridge). See Type Material.

Hadromeropsis opalinus (Horn); Pierce, 1913:400.

Pandeleteius viridissimus Van Dyke, 1943:108. Type, female, labelled "Montezuma Pass, Huachuca Mountains, Arizona, VIII-19-1940," "Van Dyke Collection", "Holotype No. 5342 Pandeletius virisissimus [sic] Van Dyke" (San Francisco). Synonymized by Howden, 1959:419.

Diagnosis.-Clothed with blue, blue-green, green, white or coppery scales; scales not scintillating, most not strongly iridescent. Elytra often with an elongate pattern on intervals 2, 3, and 4 or 3, 4, and 5 formed of imbricate, slightly paler scales. Postocular vibrissae (Fig. 39) absent or very poorly developed (maximum length 0.3 mm). Setae of prothorax not erect in either sex, parallel to surface but usually not touching it. Fore femur with distal flange absent or obsolete. Apical edge of fore tibia (Fig. 67) with narrow, acute lobe next to inner edge; lobe approximately as long as distal tooth. Flagellum 4-4.5 mm long. Spermathecal duct 4.5-6 mm long.

Description.-Male, length 6.4-8.2 mm, width 2.3-3.0 mm. Female, length 7.1-9.5 mm, width 2.8-3.8 mm. Color as in Diagnosis, the green and blue occurring in 86% of the specimens, white, pinkish white and coppery in 14%. Green or blue specimens with greenish or golden sheen or metallic lustre, others with or without rosy lustre. Prothorax sometimes faintly vittate. Color of venter same color as dorsum or infrequently pink in specimens which are green dorsally. Naturally glabrous areas of prothorax and elytra irregular in size and placement, ranging from the size of a scale to width of interval, a variety of sizes present on any specimen. Rostrum flattened or slightly concave; dorso-lateral edges parallel or slightly divergent basally; median line usually finely impressed and narrowly glabrous from between eyes to interantennal line where it is often not impressed, more broadly glabrous. Epistoma as long as wide, occupying 0.3 of anterior edge of rostrum; with 1 or more scales on epistoma in 6% of males, 3% of females, remainder without scales. Prothorax of male averaging 1.1x, of female 1.2x wider than long; surface with some fine punctures; tubercles or granules at most very weak, usually absent. Postocular vibrissae as in Diagnosis. Setae of disc as long as 2 (usually) or 3 scales, anteriorly directed, not erect; setae may be perpendicular to surface on sides at basal and apical constrictions. Elytra across humeri in male usually 1.2x, in female 1.3x wider than prothorax. Elytra of male 2.8-3.1x, of female 3.1-3.2x longer than prothorax. Humeral angles prominent. Sides of elytra parallel or almost; apex of male rounded, without a tooth. Apical edge of elytra often thickened both sexes. Female with apex slightly attenuate or not beyond weak apical umbone, sutural interval ending in a tooth no longer than 3 scales, usually much shorter. Widest intervals of disc with 4-6 scales abreast. Setae of elytra erect in both sexes, stiff, as long as 2-3 scales, uniform in length. Female at summit of declivity on sutural interval with line of 4-6 elongate setae of increasing then decreasing size, the longest seta 2-2.5x longer than those of disc. Fore femur of male 1.5-2x, of female 1.4-1.6x wider than hind femur, usually without a trace of flange on inner edge. Fore tibia as in Diagnosis. Venter evenly squamose. Ventrite 5 of male 1.9x wider than long, flat to distinctly convex, apex emarginate. Ventrite 5 of female flat or almost flat, triangular with apex very narrowly rounded, averaging 1.6x wider than long; scales sparser medially and apically in some. Male genitalia as in Figs. 74-76; aedeagus 2.4-2.7 mm long, aedeagal apodeme 1.8 mm long, tegminal strut 1.5-1.8 mm long, flagellum 4.0-4.5 mm long. Spermatheca as in Fig. 112; spermathecal duct 4.5-6.0 mm long.

Type Material.-PARALECTOTYPES of Hadromerus opalinus, HERE DESIGNATED, 1 male, 1 female: 1 male, labelled "49," "5/1 73," "Lectotype 2830" on red paper, "Horn Coll, H 8313", "Hadromerus opalinus N" in pencil on white paper [Note: this specimen had been isolated in the Academy of Natural Sciences, Philadelphia, collection of types as the lectotype by a technician before the collection went to the Museum of Comparative Zoology (J. Lawrence, in litt.); the specimen is in very poor condition.] (Cambridge); 1 female, "Ariz," "5/1 73," "49," "169," "Type 326," "Hadromerus opalinus Horn" on white paper ruled with pale blue lines (Cambridge).

Distribution.-Map 1. MEXICO. Durango: Canelas, Durango, 23 mi S Durango, 24 mi NE Durango, El Salto, 6 mi NE El Salto, 28 mi E El Salto, Navahos (20 mi E El Salto), La Ciudad, Francisco I. Madero, Otinapa, Palos Colorados. Sonora: 6 mi NW Cananea. Zacatecas: 8 mi S Fresnillo, 27 mi NW Fresnillo. UNITED STATES. Arizona: Canelo, Chiricahua, Copper Canyon, Greaterville (Sta. Rita Mts.), Montezuma Pass, Parker Canyon (Huachuca Mts.), Tex Canyon (Cochise County).

Specimens were collected in July and August.

Specimens examined: 108 males, 96 females. Specimens in Berlin, Cambridge, London, New York, Ottawa, Sacramento, San Francisco, Tucson, Howden, O'Brien.

Remarks.-Of the 31 specimens in the British Museum labelled opalinus by Champion, only two are actually opalinus. Hence, the description and discussion of opalinus offered by Champion (1911:183-184) should be disregarded. He notes that he did not see an example from Arizona, the type locality. The male illustrated by Champion in Tab. 7, Fig. 29, is from Las Vigas, Veracruz; it is a teneral specimen of flagellatus with the scales incompletely colored. The specimen depicted in Fig. 30 is a teneral female labelled "Ciudad, Mex., 8100 ft., Forrer." There is a male, also teneral, with identical data to this female and these are the only two specimens of opalinus in Champion's series. Champion refers to this locality as "Ciudad in Durango" and not in the state of Mexico; Selander and Vaurie (1962) place La Ciudad at 148 km WNW of Durango. This female is robust and exceptionally large, 9.5 mm long, 0.5 mm longer than the next largest female. The setae of the elytra are as long as about 4 scales, but the scales appear to be incompletely developed.

Other specimens labelled *opalinus* by Champion are 6 *scintillans* from Chiapas, 3 *amoenus*, 21 *flagellatus* (1 in Dresden).

In *opalinus* the postocular vibrissae and the femoral flange are the least developed of any *Hadromeropsis*. This combined with the more northern range are usually sufficient to recognize the species. However, the single specimen from 27 mi NW Fresnillo has rather well-developed postocular vibrissae; this specimen also differs from typical *opalinus* in having the setae of alternate intervals of several lengths, and the rostrum more concave. Since the spermathecal duct is 4.5 mm long and the spermatheca is within the range of variation of *opalinus*, I presume that in this specimen the vibrissae are exceptional.

Arizona specimens are less often patterned than those from Mexico.

Adults of *opalinus* seem to prefer Mimosoidea. A long series from 24 mi NE Durango (Aug. 20, O'Brien and Marshall) were taken on *Acacia schaffneri*, and the Arizona specimens were often on *Calliandra eriophylla*. Other plants recorded are *Acacia* sp., pine (one specimen) and *Ceanothus depressus*.

Various Durango and Zacatecas localities are described by Spieth (1950) in his account of the David Rockefeller Mexican Expedition of the American Museum of Natural History.

2. *Hadromeropsis* (*Hadromeropsis*) *fulgens* (Champion)

Figs. 41, 46, 66, 73, 116; Map 1

Hadromerus fulgens Champion, 1911:184, Tab. 7, Figs. 32, 33. LECTOTYPE, HERE DESIGNATED, male, labelled "Amula, Guerrero, 6000 ft., Sept. H.H. Smith," "♂," "Sp. figured," "B.C.A. Col., IV, pt. 3, Hadromerus fulgens, Ch." (London). *See* Type Material.

Diagnosis.-Densely, evenly clothed with scales of one size and one color, green, blue, or white (4%); scales iridescent (as defined in Methods) or not, never scintillating. Scales not imbricate on dorsal surface of elytra. Usually (96%) with some scales on epistoma. Natural bare areas, when present, the size of one scale, convex. Flagellum 4.0-4.4 mm long. Spermathecal duct 4.3-4.5 mm long.

Description.-Male, length 7.0-8.7 mm, width 2.6-3.4 mm. Female, length 7.5-9.0 mm, width 3.1-3.8 mm. Color as in Diagnosis, usually with a strong sheen; scales of elytral intervals 7 and 8 often less iridescent. Epistoma (Fig. 46) as in Diagnosis; averaging 1.2x longer than wide; occupying 0.3 of anterior edge of rostrum. Rostrum (Fig. 41) flat (especially female) or feebly concave; median line finely impressed from between eyes to interantennal line which may be weakly elevated in maximum development. Prothorax averaging 1.2x wider than long (range 1.1-1.29x); in dorsal view much wider than basal and apical constrictions, sides rounded or parallel in male, in female often widest posteriorly. Setae of prothorax erect in male, not erect in female (one exception), as long as 1.5-3 scales. Postocular vibrissae moderate. Elytra across humeri in male usually 1.1x, in female 1.2x wider than prothorax. Elytra of male 2.5-2.8x, of female 2.9-3.3x longer than prothorax. Sides of elytra of male parallel or slightly wider behind middle, apex truncate, without a tooth. Sides of elytra of female widest at about middle, apex slightly attenuated beyond weak apical umbone or not, ending in a minute tooth or not. Widest intervals of disc with up to 8 scales abreast. Setae of elytra erect, as long as 2-5 scales in males, 2-4 scales in females. Female usually with 4 (extreme 10) long, erect setae on sutural interval on summit of declivity. Strial punctures not larger than a scale, may be completely concealed by scales. Fore femur of male averaging 1.8x, of female 1.6x wider than hind femur; with a weak, short distal flange. Apical edge of fore tibia (Fig. 66) with narrow, rounded to acute lobe next to inner edge; distal tooth of male approximately as long as teeth on inner edge, shorter in female. Ventrite 5 of male moderately to slightly convex, apex narrowly truncate, usually 2x wider than long. Female sometimes with a few scales on perpendicular caudal surface of ventrites 2, 3, and 4; ventrite 5 across base averages 1.7x wider than long, evenly squamose or scales somewhat sparser medially. Male genitalia similar to Fig. 73 (see Remarks); aedeagus 2.2-2.7 mm long, aedeagal apodeme 1.1-1.5 mm long, tegminal strut 1.3-1.5 mm long, flagellum 4.0-4.4 mm long (1.7x longer than its aedeagus). Spermatheca as in Fig. 116; spermathecal duct 4.3-4.5 mm long.

Type Material.-PARALECTOTYPES, HERE DESIGNATED, 10 males, 14 females: 1 male, 1 female, same data as lectotype but "Aug." (London); 1 male, 3 females, "Cuernavaca, Mor., Mex., Wickham" (London, Washington); 2 males, 3 females, "Puebla, Mexico, Salle Coll." (London); 2 males, 1 female, "Parada, Mexico, Salle Coll." (London, Howden); 1 male, 1 female, "Istepec, Mexico, Salle Coll." (London, Washington); 2 males, 2 females, "Boucard, Mex., Fry Coll." (London); 1 female, "1278, Mexico, Bowring 63.47" (London); 1 male, 2 females, "Oajaca, 58.135 Mex." (London).

Distribution.-Map 1. MEXICO. Chiapas: Finca Guatimoc. Guerrero: Amula, Chilapa, Taxco. Mexico: Ixtapan de la Sal. Morelos: Cuernavaca, Tepoztlán. Oaxaca: Istepec, Monte Alban, Parada. Puebla.

Specimens were collected in July, August, September, and October.

Specimens examined: 64 males, 47 females. Specimens in Auckland, Basel, Berlin, Cambridge, Chicago, Dresden, Eberswalde, Leiden, London, Los Angeles, Mexico, Paris, Stockholm, Washington, Howden, O'Brien.

Remarks.-In the white specimen of fulgens figured in Tab. 7, Fig. 33, by Champion (1911), the prothorax is actually 1.14x wider than long, the figure being somewhat misleading. Champion mentions a "claw" on the intermediate tibia of the male; this is the small mucro which is present on the hind and middle tibia of all Hadromeropsis males.

There are three syntypes from Amula including the male lectotype (not dissected) and a similar female. The third specimen is a male which differs considerably from the above description of typical fulgens. The discrepancies are as follows: postocular vibrissae more numerous and longer; elytra 3.3x longer than prothorax, 1.3x wider across humeri than across prothorax; elytral setae sparser and a few setae on alternate intervals extremely long (as long as 8 scales); distal tooth of fore tibia long; apex of ventrite 5 emarginate; flagellum in curved position within aedeagus 6 mm long, 1.9x longer than aedeagus (Fig. 73).

Most specimens of fulgens can be readily recognized macroscopically by the uniform color with a sheen. In addition to the diagnostic characters, white specimens or worn specimens can be separated on external characters from flagellatus by the lack of punctures on the rostrum and head and by the weaker postocular vibrissae; from dejeanii by the shape of the epistoma and smaller scales; from opalinus by the very evenly distributed scales of intervals 2 and 3 especially; from crinitus by the distal flange on the fore femur and convex eye.

3. Hadromeropsis (Hadromeropsis) crinitus n. sp.

Figs. 40, 42, 43, 47, 77, 117, 131; Map 1

Diagnosis.-Densely, uniformly squamose as fulgens, but all dorsal setae both sexes erect, longer, and denser than in fulgens. Eye large and only feebly convex (Figs. 40, 42). Postocular vibrissae poorly developed, no longer than adjacent setae. Fore femur without distal flange. Aedeagus (Fig. 77) arcuate proximally only; remainder straight, flattened dorsally and with dorso-lateral edges carinate. Spermatheca as in Fig. 117, duct 1.3 mm long.

Description.-Holotype, male, length 9.1 mm, width 2.9 mm. Densely clothed with scales of pinkish tan, obsoletely iridescent, without a sheen; scales discrete, imbricate only on pronotum either side of median line. Scales of ventral surface faintly opalescent whitish. Naturally glabrous areas of elytra the size of a scale or less, except sutural interval where scales are sparser. Setae of head and rostrum as long as 3-4 scales; setae of prothorax as long as 5-7 scales, setae of elytra as long as 5-8 scales. Rostrum approximately as wide as long, dorso-lateral edges parallel, sides broadly visible in dorsal view; flattened dorsally, apex rather strongly deflected, epistoma thus almost vertical. Median line finely impressed between eyes only; dorsal surface of rostrum with scattered fine punctures. Epistoma (Fig. 43) occupying 0.4 of anterior edge of rostrum, 1.3x wider than long, without scales. Head thick in profile (Fig. 40); eye large, elongate, scarcely exceeding head in outline (Fig. 42). Prothorax 1.08x wider than long, sides slightly rounded between constrictions; in profile, disc feebly arcuate, constrictions obsolete. Prothorax with a very few small punctures, no pustules. Postocular vibrissae as in Diagnosis, Fig. 40. Scutellum with a few scales and a few appressed setae. Elytra across humeri 1.3x wider than prothorax. Elytra 3.0x longer than prothorax. Humeri prominent, sides of elytra very slightly convergent from humeri to apical 0.3, thence more strongly convergent to apex, apical umbone weak in dorsal outline; apices briefly individually rounded, without a tooth. Base of elytra including scutellum abruptly perpendicular. Strial punctures small and striae poorly defined, especially apically. Widest intervals 5 scales abreast; interval 5 narrower, as narrow as 3 scales abreast. Setae very numerous on elytra (Fig. 47); uniform in length except occasional setae of alternate intervals slightly longer. Fore femur 1.9x wider than hind femur, strongly but gradually swollen. Apical edge of fore tibia with inner lobe approximately equal to distal tooth, distal tooth 0.2 of width of apical edge. Last tergite in apical view scarcely convex. Abdomen long, convex; ventrite 5 (Fig. 131) convex, apex truncate, 1.7x wider than long. Genitalia as in Diagnosis, Fig. 77; aedeagus 3.3 mm long, aedeagal apodeme 1.3 mm long, tegminal strut 1.8 mm long. Endophallic structure not seen, internal sac damaged.

Allotype, female, length 9.0 mm, width 3.4 mm long. Differs from type as follows. Rostrum with median line foveate between eyes. Prothorax 1.2x wider than long; sides of prothorax with a few glabrous pustules. Elytra across humeri 1.3x wider than prothorax. Elytra 3.6x longer than prothorax. Sides of elytra very slightly divergent to apical 0.3, thence gradually, slightly rounded to apex, apical umbone weaker than in male; sutural interval ending in a blunt tooth about as long as a scale. Intervals and striae slightly more evident, partly because intervals are feebly convex, especially basally and laterally. Widest intervals up to 8 scales abreast. Setae of summit of declivity on sutural interval little different from other setae of same interval, but 9 setae slightly longer. Fore femur 1.5x wider than hind femur. Ventrite 3 with caudal margin arcuate, posteriorly directed. Ventrite 5 across base 1.7x wider than long, elongate-triangular, apex very narrowly rounded, slightly convex longitudinally; scales on sides basally only. Spermatheca as in Fig. 117; spermathecal duct 1.3 mm long.

Type Series.-Holotype, MEXICO, [Michoacan], Patzcuaro, Koebele, Koebele Collection (San Francisco). Allotype, same data as type (San Francisco). No paratypes.

Remarks.-The wide epistoma is equalled or exceeded in *flagellatus* and some *opalinus*. The elytral setae are more dense than on any other species seen. The eyes may be as feebly convex in female *flagellatus* and, less frequently, in female *opalinus*.

The internal sac was damaged in dissection and its form is consequently unknown, but no obvious flagellum or sclerites were observed. The tegmen is narrower in *crinitus* than in the other three species in the group. The aedeagal apodemes are short as in *aureus*, *brevicomus*, *superbus*. The length of the spermathecal duct is "normal", i.e., not modified for a flagellum. These characters all indicate an internal sac with a short flagellate structure similar in size to that of *aureus*, *brevicomus*, *superbus*.

H. crinitus occurs in an area from which I saw no other specimens of *Hadromeropsis*. It is closest in characters and range to *opalinus* to the north and *fulgens* from Guerrero. The diagnostic characters listed will separate it from both.

The Latin word *crinitus* means hairy or with long hair.

4. *Hadromeropsis* (*Hadromeropsis*) *flagellatus* n. sp.

Figs. 45, 48, 68, 78-81, 113-115, 132, 133; Map 2

Diagnosis.-Often appearing dusty or slightly tessellate because of arrangement of scales and long, erect setae. Clothed with white, white and blue, iridescent green (especially in Veracruz), or coppery scales. Scales often of several sizes, elytra often vaguely vittate because of denser scales on intervals 2, 4, 6, and 8; vittae often interrupted with irregular glabrous areas; with a vague V-shaped mark before declivity in 14% of specimens; never evenly squamose as in fulgens. Setae of head, prothorax and elytra long, fine, erect in both sexes. Fore femur with weak to moderate distal flange (Fig. 48), flange with at least a few shiny granules or tubercles in males and in some females. Last tergite of male convex (especially northern part of range), or flattened medially (especially center of range) or with a longitudinal concavity (southern end of range). Genitalia extreme (Figs. 78-81). Aedeagus 2.5-3.2 mm long, aedeagal apodeme 1.1-1.4 mm long, tegminal strut 2.8-3.3 mm long, thus aedeagal apodeme less than half the length of aedeagus, tegminal strut averaging as long as aedeagus; ring of tegmen very wide; flagellum 9-11 mm long (3-4x longer than aedeagus), longer than entire beetle. Spermathecal duct 7.5-12.0 mm long.

Description.-Holotype, male, length 7.8 mm, width 2.8 mm. Shiny black, sparsely clothed with white scales interspersed with gray-blue scales, scales varying greatly in size and shape. Scales especially sparse on pronotum, scales of elytra forming a few vague clusters on intervals 2 and 4. Dorsal setae fine, with long filamentous tips mostly abraded in type; setae of male topotypes as long as 3 large scales on head and rostrum, as long as 3-6 large scales on prothorax, as long as 4-7 large scales on elytra. Head and rostrum (Fig. 45) punctate, each seta arising from a puncture approximately as large as a scale. Punctures of rostrum confluent apically, each puncture bearing a scale or seta. Rostrum 1.2x longer than wide, dorso-lateral edges distinct, parallel; sides of rostrum narrowly visible in dorsal view. Median line marked with elongate pit between anterior half of eyes; basal half of rostrum weakly concave. Epistoma approximately as wide as long, occupying 0.4 of anterior edge of rostrum; epistoma without scales, sides weakly carinate anteriorly. Segments 1 and 2 of funicle equal; club approximately 3x longer than wide. Prothorax 1.13x wider than long, slightly convex, sides slightly rounded between constrictions; constrictions obsolete on disc. Disc of prothorax with a few fine punctures, sides of prothorax with base of some setae weakly granulate. Postocular vibrissae consisting of about 8 moderately long, fine, white setae. Scutellum with a few small scales, mostly glabrous. Elytra across humeri 1.3x wider than prothorax. Elytra 3.1x longer than prothorax. Humeri prominent, right-angled. Sides of elytra parallel to approximately apical 0.3, apical umbone weak, apex beyond umbone broadly rounded, without a tooth. Strial punctures uniform in size, moderate. Widest intervals 4 scales abreast, but scales not contiguous. Setae of ventral surface and legs much more numerous than on dorsal surface, otherwise similar. Fore femur (Fig. 48) 1.7x wider than hind femur; distal flange brief but distinct, with shiny, sharp tubercles. Fore tibia (Fig. 68) cyclindrical; apical edge with inner lobe obsolete; distal tooth very small, only 0.2 of width of apical edge. Ventrite 5 (Fig. 132) slightly convex, 2.2x wider than long, apex broadly emarginate. Last tergite convex with a central flattened area; surface punctate. Genitalia as in Fig. 78-81. Aedeagus flattened dorsally, dorso-lateral edge sharp, almost carinate basally. Aedeagus 2.7 mm long, aedeagal apodeme 1.1 mm long, tegminal strut 2.8 mm long, flagellum more than 9 mm long.

Allotype, female, length 8.7 mm, width 3.3 mm. Differs from type as follows. Scales similar in color, but more dense; prothorax with wide almost glabrous median and dorso-lateral vittae. Setae of head and rostrum more numerous, most directed toward median line, as long as 2-3 adjacent scales. Head more robust, eyes much less prominent. Segment 2 of funicle 0.8x as long as segment 1; club 2.3x longer than wide. Prothorax 1.16x wider than long, flat in profile; disc indistinctly flattened laterally. Elytra across humeri 1.4x wider than prothorax. Elytra 3.1x longer than prothorax. Elytra slightly wider across middle; widest intervals 5 scales abreast; setae of various lengths, as long as 3-8 scales, all setae of declivity longer; sutural interval at summit of declivity with 8 very long, erect setae. Fore femur 1.4x wider than hind femur. Caudal margin of ventrites 2 and 3 anteriorly arcuate and caudal surface slanted anteriorly; caudal margin of ventrite 4 straight, surface perpendicular. Ventrite 5 (Fig. 133) across base 1.8x wider than long, elongate-triangular, apex narrowly rounded, slightly convex longitudinally; scales on sides basally only, medially with only sparse, short setae. Allotype not dissected; female topotypes with spermatheca as in Fig. 113, spermathecal duct 8-8.5 mm long; duct scarcely wider or more sclerotized at bursa.

Type Series.-Holotype, MEXICO, Tlaxcala, 21 mi W Apizaco, Aug. 20, 1958, E. Mockford, on juniper (Howden). Allotype, same data as type (Howden). Paratypes, 43 males, 49 females. MEXICO. 1 female, Hoege, Coll. Kuschel (Auckland); 2 males, 1888 [1], Coll. Kuschel (Auckland); 1 male, 1 female (Basel); 1 male, 2 females, F.C. Bowditch Coll. (Cambridge); 6 males, 6 females, Koltze Coll. or Boucard [1], J. Faust, Ankauf 1900 (Dresden*); 1 female, Hoege, Samml. K.F. Hartmann (Dresden); 1 male, 1 female, Coll. Kraatz, *Hadromerus opalinus* Horn, Hust. det. 1938 [1], Kuschel det. [1] (Eberswalde); 2 males, 1 female, Sharp Coll. 1905-313 (London*); 1 female, Boucard, Fry Coll. 1905-100 (London); 1 female, Tylden Coll. (Oxford); 1 female, coll. de Bonneuil, Ex. Coll. Clerc (Paris); 2 females, Hustache Coll. (Paris); 1 male, 1 female, ex Coll. Oberthur (Paris); 3 males, 1 female, Salle 1859 (Paris). Guerrero: 1 male, 1 female, Texquitzin bei Chilapa, X.29, L. Schultze S.G. (Berlin). Hidalgo: 3 males, 1 female, 15 mi NE Huichapan, 6900 ft, 8-18-1971, C & L O'Brien & Marshall (O'Brien); 1 male, 6 mi E Tulancingo, VI.24.1962, J.M. Campbell (Howden). Jalisco: 1 female (Mexico); 1 male, 5 mi NW Lagos de la Moreno, VII-16-1974, R.L.Mangan & D.S.Chandler (O'Brien). Mexico: 1 female, D.F., J. R. Inda Collector (Washington); 1 male, Ixtapan la Sal, 5500 ft, 9.VIII.1954, J. G. Chilcott (Ottawa); 2 males, 1 female, 5 mi SE Texcoco, 30.VII.67, on *Mimosopsis aculeaticarpa* Br. & Rs.(Howden); 1 female, 10 km de Villa Morelos, VIII.26.1956, G. Halffter (Howden). Puebla: 1 male, 3 females, Salle Coll. (London*, Howden*); 1 female (Stockholm). San Luis Potosí: 1 male, Hacienda de Bleados, Dr. Palmer (London*). Tlaxcala: 3 males, 5 females, same data as type, or H.F. Howden [2] (Ottawa, Howden). Veracruz: 1 female, Deyr. (Cambridge); 1 male, 3 females, Jalapa, Hoege (London*, Washington*); 1 female, 2.3 mi W Acultzingo, 7000 ft, Aug.24, 1951, J.E.Mosimann, T.M. Uzzell, G.B. Rabb (Howden); 4 males, 3 females, El Camaron, Salle Coll. (Dresden*, London*); 1 female, Cordova, Hoege (London*); 1 female, Playa Vicente, Hoege (London*); 1 male, Las Vigas, Hoege, Sp. figured [the male figured in Tab. 7, fig. 29, B.C.A., Col., IV, pt.3] (London*). No data: 5 males, 5 females (Cambridge, Dresden, London*, San Francisco, Stockholm, Washington*).

* Bearing Champion label "B.C.A., Col., IV, pt. 3 Hadromerus opalinus Horn."

Remarks.-Paratypes vary as follows. Males vary in length from 7.4-9.0 mm and in width from 2.5-3.1 mm. Females vary in length from 8.1-10.4 mm and in width from 3.2-4.0 mm. Champion's illustration of "opalinus" (1911, Tab. 7, Fig. 29) accurately depicts the form and dusty appearance of many specimens of flagellatus. The vittate appearance of some specimens may be emphasized by the fact that intervals 3 and 5 are often very slightly more elevated and scales there are more frequently abraded from them leaving scales more numerous in shallower intervals 2 and 4. Macroscopically most specimens appear white or whitish, 11% are green and only 3% are distinctly coppery. No specimens were seen with scintillating scales as in dejeanii, amoenus, etc.

The filamentous tips of dorsal setae are readily damaged; when apparently entire, they may be of several lengths on the elytral intervals and, infrequently, as much as twice as long on alternate intervals. Setae of elytra are in single but irregular rows on each interval on disc, more numerous on sutural and lateral intervals. Females may have as many as 14 long setae on the sutural interval on the declivity. The epistoma has 1 or more scales in 7% of the males, 18% of the females. The antennal club is variable in length. Widest elytral intervals of females are up to 7 scales abreast. Apex of elytra in females often with sutural interval produced in oblique overlapping knobs or teeth, these teeth directed posteriorly in only 10% of the females. Fore femur of females often lack tubercles on the inner distal edge. Inner lobe of the apical edge of the fore tibia may be moderately developed; inner edge of fore tibia with as many as 16 teeth. Variation in genitalia is listed in the Diagnosis; the spermatheca varies in shape as in Figs. 114, 115.

The flagellum is always longer than the entire length of the beetle and its proximal end is always very stiff. Within the beetle the proximal end is found in one or two large loops or a figure "8" over the proventriculus in the metathorax (Fig. 80). In one instance the proximal end seemed to extend into the prothorax. A special technique for dissecting these extreme genitalia is outlined in Methods and Terminology.

No special technique was needed to dissect females; the extremely long spermathecal duct was often found neatly and compactly folded back and forth beside the spermatheca.

There is some indication of characters grading from the southern, lower elevation part of the range to the central and northern part of the range and higher elevations. "Southern" specimens are from El Camarón (7), Córdoba (1), Playa Vicente (1), and "Mexico" (10 males, 4 females). They are characterized as follows: 55% clothed with iridescent green scales (compared to only 7% from elsewhere); last tergite of male with distinct longitudinal concavity (flattened or convex elsewhere); flagellum 10, 10.5 and 11 mm in the three dissected (9-10 mm in the four flagella measured of 10 others dissected); spermathecal duct 8.7 and 10 mm in the two dissected (8-12 mm, average

9.3 mm in the 10 others dissected). Males from the "center" of the range have the last tergite flattened medially; this includes the type locality of Apizaco in Tlaxcala, Chilapa in Guerrero, Puebla, Texcoco (1 of 2 males) and Ixtapan la Sal in Mexico, and Las Vigas in Veracruz. Males from the states of Hidalgo, San Luis Potosí, and some from Mexico have the last tergite evenly convex.

H. flagellatus is most closely related to *opalinus* which differs from *flagellatus* in the greatly reduced *femoral* flange, and consequently the absence of tubercles or granules on the area of the femoral flange, in the further reduction of the postocular vibrissae, in the thickened apical edge of the elytra, in the prothoracic setae not erect in either sex, and in the different genitalia. Apparently *opalinus* is restricted to the Sierra Madre Occidental, extending as far south as the Tropic of Cancer, whereas *flagellatus* occurs in the Sierra Madre Oriental south of 22° as in Map 2.

Many specimens of *fulgens* have labels identical to those of *flagellatus*. *H. fulgens* is most readily distinguished externally by its more strongly rounded sides of prothorax, lack of punctures on head and rostrum, denser scales, fine strial punctures, and longer, slightly curved fore tibia.

The name *flagellatus* refers to the extremely long flagellum of the males of this species.

The *scintillans* Group

5. *dejeanii* (Boheman)
6. *amoenus* n. sp.
7. *scintillans* (Champion)
8. *micans* (Champion)
9. *brevicomus* n. sp.
10. *aureus* (Blanchard)
11. *cretatus* (Champion)
12. *rufipes* (Champion)
13. *superbus* (Heller)

Characteristics of Group.-Scales scintillating, iridescent or neither, without a sharply defined color pattern, often with a pattern formed by size and arrangement of small glabrous areas. Without tubercles or pustules on prothorax or elytra but *aureus*, and to a lesser extent *brevicomus*, with a tendency for glabrous areas to be slightly elevated. Setae of elytra in some species much longer on alternate intervals. Fore tibia at least slightly curved and at least slightly bowed distally (except some *scintillans*). Endophallic structure a flagellum, but not known for *micans* and *rufipes*. Female without bursal sclerites; spermathecal duct proportionate in length to that of flagellum.

Remarks.-Of the other two flagellate species groups, the *opalinus* group differs from the *scintillans* group in the straight fore tibia and wide tegmen and the *gemmifer* group differs in the presence of a tubercle on the fore coxa on the inner distal edge.

5. *Hadromeropsis* (*Hadromeropsis*) *dejeanii* (Boheman)

Figs. 44, 71, 82, 83, 118; Map 1

Hadromerus dejeanii Boheman, 1840:293. Champion, 1911:183; Tab. 7,

Fig. 27. Type, male, labelled "34" mechanically printed on white square, "Vera Crux in Mexico, Chevr. 675" hand written on pale blue coated paper, "9" printed on white paper, "Typus" on red paper rectangle outlined in black, "dejeani [sic] Chevr." penciled on yellow paper, "163, 53" on salmon paper (Stockholm).

Diagnosis.-A short, stout species uniformly clothed with large, flat, scintillating green scales, or with smaller iridescent scales interspersed, or (1 female) with iridescent scales only. Epistoma long and narrow (Fig. 44), often connected to median line by glabrous line; occupying only 0.1-0.3 of anterior edge of rostrum. Setae of pronotum in both sexes appressed, as long as 1-1.5 scales. Fore femur stout, with strong distal flange on inner edge. Fore tibia (Fig. 71) often evenly arcuate, or bowed apically only. Apical edge of fore tibia of male with weak to obsolete lobe near inner side; in female lobe obsolete to absent. Aedeagal apodeme very long, 0.76 as long as aedeagus; flagellum 4.9-5.5 mm long.

Description.-Male, length 6.8-8.5 mm, width 2.6-3.1 mm. Female, length 8.0-9.6 mm, width 3.1-4.2 mm. Scales imbricate or discrete. Glabrous areas of pronotum rather evenly distributed, approximately the size of a scale, occasionally confluent, weakly convex; often with median line partly glabrous. Glabrous areas of elytra ranging in size from less than the diameter of a scale to the size of several scales; areas flat to weakly convex. Rostrum (Fig. 44) flat to concave, median line often narrowly glabrous and connected to apex of epistoma, thus emphasizing the length of the epistoma. Epistoma usually approximately 2x (range 1.3-2.0x) longer than wide; epistoma occupying 0.19-0.26 in male, 0.23-0.38 in female of anterior edge of rostrum; epistoma with 1 or more scales in 17% of males, 15% of females. Antennal club short, length 0.6-0.8 mm in male, 0.6-0.7 mm in female. Prothorax convex, sides strongly rounded, averaging 1.1x wider than long. Setae of pronotum as in Diagnosis. Postocular vibrissae moderate. Elytra across humeri 1.2x wider than prothorax. Elytra of male 2.5-2.7x, of female 2.8-3.2x longer than prothorax. Sides of elytra of male parallel, elytra of female wider apicad of middle. In both sexes apical umbone weak, distinct; apex truncate, without a tooth. Widest intervals of disc with 5 or 6 scales abreast. Setae of elytra in both sexes stiff, erect, as long as 2-3 scales, those of alternate intervals may be slightly longer than those of other intervals. Female with an average of 6 (extreme 12) long, erect setae on sutural interval at summit of declivity. Fore femur as in Diagnosis; in male 1.8-2.2x, in female 1.4-1.7x wider than hind femur. Fore tibia as in Diagnosis and Fig. 71, with some small, shiny pustules on posterior surface near teeth. Ventrite 5 of male 2.0-2.2x wider than long, moderately convex, apex broadly truncate-emarginate. Last tergite of male convex. Ventrite 5 of female 1.8-2.0x wider than long, sparsely squamose, almost flat. Male genitalia as in Figs. 82, 83; aedeagus 2.8-3.2 mm long, aedeagal apodeme 2.3-2.6 mm long, tegminal strut 2.0-2.2 mm long, flagellum within aedeagus 4.9-5.5 mm long. Spermatheca as in Fig. 118; spermathecal duct 5.9-6.0 mm long.

Distribution.-Map 1. MEXICO. Chiapas [see Remarks]. Nuevo Leon: Santiago. San Luis Potosí: 6 mi E Ciudad del Maiz, 4400 ft. Veracruz: Córdoba, El Camarón, Jalapa, Orizaba, Playa Vicente.

Specimens were collected in July and August. A series of specimens from Santiago, Nuevo Leon, was taken on pear trees.

Specimens examined: 31 males, 18 females. Specimens in Auckland, Berlin, Dresden, Eberswalde, Leiden, London, Paris, San Francisco, Washington, Howden, O'Brien.

Remarks.-Champion's description and illustration of dejeanii are accurate. H. dejeanii superficially resembles brevicomus in the characters of the prothoracic setae, body shape, etc., but differs in the more evenly distributed glabrous areas of the elytra (concentrated medially in brevicomus), scintillating scales (iridescent in brevicomus), and very different male and female genitalia. The aedeagal apodomes are longer in dejeanii than in any other species in the nominate subgenus.

Only a pair of specimens of dejeanii labelled "Chiapas, ex. Col. Salle" (Dresden) indicate that dejeanii possibly overlaps the range of scintillans and brevicomus. H. scintillans, although often similarly clothed with green scintillating scales, is not as closely related and can be readily distinguished by its elongate body, long dorsal setae, etc.

6. Hadromeropsis (Hadromeropsis) amoenus n. sp.

Figs. 84-86, 121, 134, 135; Map 3

Diagnosis.-Strongly resembling a Guatemalan scintillans but flagellum and spermathecal duct measuring approximately only one-third as long and occurring north of the Isthmus of Tehuantepec. Sympatric with dejeanii and similar to it in color but fore tibia usually less bowed, elytra longer, female with tooth on apex of sutural interval, genitalia different. Flagellum shorter than aedeagus, 1.3-2.0 mm long; proximal end with a heavy collar (Figs. 85, 86). Spermathecal duct 1.5-2.2 mm long.

Description.-Holotype, male, length 8.5 mm, width 2.7 mm. Elytra and sides and dorsum of prothorax clothed with large, green scintillating scales; remainder of body and legs clothed with pale, iridescent pinkish scales with occasional scintillating green scales. Scales contiguous or not, nowhere forming a vitta; glabrous areas smooth, polished black, irregular in shape on pronotum, glabrous areas of elytra of various sizes, sometimes as wide as intervals and continuous with adjacent glabrous areas, thus forming vague, short, wavy fasciae; glabrous areas smaller towards apex, on declivity the size of one or more scales. Rostrum approximately as wide as long, dorsal surface very slightly inclined towards median line; median line glabrous, very finely impressed between eyes only. Epistoma occupying 0.3 of anterior edge of rostrum, without scales, 1.4x longer than wide. Segment 2 of funicle 1.3x longer than segment 1; club 3.6x longer than wide, 0.8 mm long. Prothorax 1.08x wider than long, strongly convex, sides strongly rounded between constrictions, basal constriction complete, apical constriction obsolete on disc; postocular vibrissae well developed. Setae of disc of pronotum as long as 1.5-2 scales, setae of sides of prothorax as long as 2-3 scales, setae matted except a few basal setae erect. Scutellum covered with scales and a few fine, appressed setae. Elytra across humeri 1.2x wider than prothorax. Elytra 2.75x longer than prothorax. Elytra shaped as in *scintillans*. Strial punctures subfoveate basally, becoming smaller towards apex. Widest interval 4 scales abreast. Setae of elytra obviously worn on type; erect; in male paratypes some setae of alternate intervals longer, shorter setae as long as 2.5 scales, longest setae as long as up to 6 scales. Fore femur 1.9x wider than hind femur, distal flange well developed, its edge with a few acute pustules lower than the diameter of one scale. Fore tibia as in *scintillans*, distal tooth as long as 0.5 of width of apical edge. Ventrite 5 (Fig. 134) slightly convex, 2x wider than long, apex broadly truncate, shallowly emarginate. Last tergite convex. Aedeagus as in Fig. 84; apex cupped, not depressed ventrally; dorsally testaceous and flexible from orifice to apical 0.28 of total length of aedeagus. Aedeagus 2.4 mm long, aedeagal apodeme 1.2 mm long, tegminal strut 1.4 mm long, flagellum 1.4 mm long.

Allotype, female, length 10.1 mm, width 4.0 mm. Differs from type as follows. All scales scintillating green. Glabrous areas smaller, seldom the width of one elytral interval. Epistoma occupying 0.26 of anterior edge of rostrum, 2.1x longer than wide. Segment 2 of funicle 1.1x longer than segment 1; club 3.3x longer than wide, 0.7 mm long. Prothorax 1.1x wider than long, much less convex. Elytra across humeri 1.3x wider than prothorax. Elytra 3.3x longer than prothorax. Alternate intervals of elytra with a few very long setae basally and apically; most setae as long as 2 scales, the very long setae as long as 4 scales. Widest intervals 6 scales abreast. Sutural interval at summit of declivity with 6 or more long, erect setae. Apex of sutural interval with short, distinct tooth. Fore femur 1.3x wider than hind femur. Ventrite 5 (Fig. 135) as in *scintillans* female. Spermatheca as in Fig. 121; spermathecal duct broken in allotype, 1.5-2.2 mm in paratypes.

Type Series.-Holotype, MEXICO, Veracruz, Jalapa, 9/28-X/3/61, R & K Dreisbach (Howden). Allotype, same data as type (Howden). Paratypes, 13 males, 16 females. MEXICO. [Oaxaca?] : 1 male, Juquila, Flohr S. (Berlin). Puebla: 1 female, Crawford [syntype of *Hadromerus micans* Champion] (London); 1 male, 1 female, 6 mi. W Teziutlan, Aug. 18, 1958, R.B. Selander (Howden). Veracruz: 6 males, 6 females, same data as type, or VIII/1-6/61 [1 female] (Paris, Washington, Howden, O'Brien); 2 females, no additional data (San Francisco); 1 female, 10 km N Fortin, July 21-29, 1976, E. Giesbert Coll (Los Angeles); 1 male, Las Vigas, Hoege [*opalinus* Horn, det. Ch.] (London); 1 male, 1 female, 13 mi E Las Vigas, VI-29-1962, J.M. Campbell (Ottawa, Howden); 1 male, Orizaba, HHS & FDG, Dec. 1887 [syntype of *Hadromerus scintillans* Champion] (London); 1 female, Orizaba, Flohr S. (Berlin); 1 male, Orizaba, 25.VII.1978, G & M Wood (Howden); 1 female, Playa Vicente, Hoege [*opalinus* Horn, det. Champion] (London); 1 male, Playa Vicente, Hoege [syntype of *Hadromerus scintillans* Champion] (London). No data: 1 female, S. Mex. [*opalinus* Horn, det. Champion] (London); 1 female, Mex., F.C. Bowditch Coll. (Cambridge).

Remarks.-Males vary in length from 7.7-9.1 mm and in width from 2.8-3.1 mm. Females vary in length from 8.1-11.4 mm and in width from 3.1-4.1 mm. All but four specimens were completely clothed with scintillating green scales. One male from Las Vigas was entirely clothed with slightly convex iridescent pinkish scales but with occasional flat scintillating scales, the iridescent scales of the middle and hind femora more green than pink. In the other Las Vigas male there are iridescent scales intermingled everywhere with the scintillating green. In one female from Playa Vicente the scales are about one-half scintillating green and most of the remainder are slightly convex non-iridescent whitish. In the female from "S. Mex." iridescent green scales outnumber the occasional opalescent scales. In *amoenus* as in *scintillans*, a distal portion of the epistomal edges are shiny and weakly carinate. Scales encroached on the epistoma in two males and four females. The antennal club of the male ranges from 3-4x longer than wide. Glabrous spots on the prothorax were slightly elevated in one male from Las Vigas and one male from Orizaba. Setae seem to be particularly delicate in this species, but even in the freshest specimens only occasional setae were erect on the pronotum. In the largest females the widest intervals occasionally were 7 scales abreast. The female elytral tooth ranges from scarcely perceptible to as long as 4 scales. The fore tibia is definitely bowed in the male from 13 mi E Las Vigas. Male genitalia varies as follows: aedeagus 2.1-2.5 mm long, aedeagal apodeme 1.0-1.3 mm long, tegminal strut 1.2-1.5 mm long, flagellum 1.3-2.0 mm long. Spermathecal duct is 1.5-2.2 mm long.

Vague, wavy, slightly elevated transverse glabrous lines were present on the elytra in half the male paratypes and may be helpful in tentative identification of males. I did not see such elytral markings in any specimens of the sympatric *dejeanii*, but they are distinct in *brevicomus* described here from Chiapas.

In addition to *dejeanii*, *H. amoenus* is also sympatric with *flagellatus* and is readily separable from the latter by the convex prothorax, narrower epistoma, bowed apex of fore tibia and characters of the genitalia.

The locality is helpful, but examination of the male and female genitalia is usually necessary for positive identification of *amoenus* among other species of the *scintillans* group.

Particular care should be exercised regarding a locality of "Jalapa" not associated with a state. Jalapa is the name of a medicinal plant and towns of that name abound outside the known range of *amoenus*.

This species is named *amoenus*, meaning "pleasant, delightful", partly in reference to the physical attractiveness of the specimens and partly in memory of the late R.R. and Kay Dreisbach, a delightful couple who thoroughly enjoyed collecting insects and sharing their catch with others.

7. *Hadromeropsis* (*Hadromeropsis*) *scintillans* (Champion)

Figs. 69, 87-89, 120, 136, 137; Map 3

Hadromerus scintillans Champion, 1911:182; Tab. 7, Figs. 25, 26. LECTOTYPE, HERE DESIGNATED, male, on card with female, labelled, "Quiche Mts., 7-9000 ft., Champion," "♂♀," "B.C.A., Col. IV, pt.3, Hadromerus scintillans, Ch." (London). *See* Type Material.

Diagnosis.-Very variable, the range (Guatemala to Chiapas and

Tabasco in Mexico) and the characters of the genitalia often necessary for recognition. Setae (see caution in Methods) of entire body erect in male; in female, setae may or may not be erect on head and prothorax. Elytra with humeri prominent; setae of alternate intervals distinctly longer. Fore femur with flange moderately to well developed. Apical edge of fore tibia (Fig. 69) divided into two lobes subequal in length and often in width. Flagellum within aedeagus measures 4.1-6.0 mm long. Spermathecal duct measures 4.3-7.0 mm long.

Description.-Male, length 7.5-9.1 mm (Guatemala specimens), 6.8-9.3 mm (other localities); width 2.7-3.2 mm (Guatemala specimens), 2.5-3.1 mm (other localities). Female, length 8.9-10.0 (Guatemala specimens), 7.6-10.0 mm (other localities); width 3.2-3.8 mm (Guatemala specimens), 2.0-3.8 mm (other localities). Typical (Guatemala) specimens densely clothed with green scintillating scales, scales randomly discrete or overlapping. Specimens from other localities with scales as in Guatemala specimens or one of the four following patterns. Pattern 1, scales of elytral intervals 3, 8, and 9 more dense, forming a tone-on-tone vitta. Pattern 2, hind legs and often venter tan; scales slightly convex, whitish, tan or slightly pinkish, not at all scintillating or iridescent (Montebello, Teopisca), or with varying amounts of metallic reflections (Bochil, Las Margaritas, San Cristóbal, Teopisca). Pattern 3, bicolored with green and pinkish scales, e.g., dorsum green, venter pinkish or the reverse, or head and prothorax pinkish, elytra green; or elytral intervals 4 to 7 green and remainder pinkish (San Cristóbal). Pattern 4, venter and legs black, scales sparser exposing shiny black integument; all scales macroscopically silvery, rosy or tan, under magnification appearing brilliant, scintillating colors, especially red, green, and gold, each scale one color but all colors on each specimen; these specimens usually with vittae on elytral intervals 3, 8 and 9 and scales often very sparse between vittae (Montebello, San Cristóbal, San Felipe, Simojovel, Villahermosa). Densely squamose specimens with random glabrous spots on prothorax and elytra; glabrous spots largest on basal portion of elytra, becoming much smaller on declivity; females more densely squamose than males of all patterns. Rostrum slightly concave medially and median line usually narrowly glabrous (Guatemala specimens); rostrum flattened (patterns 1, 2, 3) or slightly concave (pattern 4) and median line occasionally glabrous; median line not impressed except between eyes. Epistoma occupying 0.25-0.3 of anterior edge of rostrum in male, 0.2-0.4 in female. Epistoma with 1 or more scales in 83% of specimens from Guatemala, 13% of other specimens. In Guatemala specimens, prothorax of male convex, sides strongly rounded, averaging 1.08x wider than long; prothorax of female slightly less convex dorsally, sides less rounded, averaging 1.14x wider than long. Prothorax of pattern 1, 2, and 3 specimens averaging 1.1x wider than long in male, 1.14x in female. Prothorax of pattern 4 specimens averaging 1.08x wider than long in male, 1.13x in female. In profile prothorax of Guatemala specimens with basal constriction distinct, apical constriction slightly less so; often with vague dorso-lateral depression; other specimens similar or not; glabrous area of disc flat to slightly pustulate. Median line often partially faintly impressed or glabrous or both. Setae of disc of prothorax erect in male; female with no setae on disc erect (Guatemala specimens) or erect on basal third (most specimens of patterns 1, 2, and 3), or all setae erect (specimens of pattern 4 and some others). Postocular vibrissae moderate to well developed. Scutellum covered with scales and a few appressed setae or (pattern 4) setae only. Elytra across humeri average 1.3x (range 1.2-1.4x) wider than prothorax in male, 1.4x (range 1.3-1.5x) in female. Elytra average 2.9x (range 2.7-3.1x) longer than prothorax in male, 3.4x (range 3.1-3.7x) in female. Humeri prominent; in male elytra widest across base, sides parallel or gradually tapered, in female elytra widest apicad of middle; apical umbone distinct in both sexes. Apex of elytra slightly longer than in *dejeanii*, that of female usually with a short tooth. Widest intervals of disc with 5 or 6 scales abreast (extreme, 8). Setae of alternate elytral intervals much longer on apical portion and occasionally longer on base. Female with an average of 8 long, erect setae on sutural interval at summit of declivity. In densely squamose specimens, strial punctures the size of a scale or smaller; in more sparsely squamose specimens, strial punctures may be foveate, especially near base of elytra. Fore femur of male averages 1.8x wider than hind femur (Guatemala specimens) or 2x (pattern 4) or 2.2x (others). Fore femur of female averages 1.4x wider than hind femur in Guatemala specimens, 1.5x in all others. Fore femur with distal flange moderately to well developed, weaker in female, its edge often with a few small acute pustules. Fore tibia (Fig. 69) weakly arcuate distally or not, apical edge as in Diagnosis, distal tooth acute, usually longer than teeth of inner edge. Ventrite 5 of male (Fig. 136 of Quiché specimen) moderately convex, averaging 2x wider than long, apex broadly, shallowly emarginate. Last tergite of male convex. Ventrite 5 of female averaging 1.7x wider than long (Fig. 137 of Guatemala specimen) (Guatemala and patterns 1, 2, and 3), 1.5x in pattern 4 specimens; ventrite very slightly convex, squamose as remainder of abdomen. Male genitalia as in Figs. 87-89. In Guatemala and pattern 1, 2, and 3 specimens, aedeagus 2.4-2.5 mm long, aedeagal apodeme 1.6-1.9 mm long, tegminal strut 1.3-1.7 mm long, flagellum 4.1-4.8 mm long; in pattern 4 specimens, aedeagus 2.3-3.2 mm long, aedeagal apodeme 1.7-2.0 mm long, tegminal strut 1.7-2.0 mm long, flagellum 4.7-6.0 mm long. Spermatheca as in Fig. 120. In Guatemala and patterns 1, 2, and 3 specimens, spermathecal duct 4.0-5.5 mm long, in pattern 4 specimens, 5.5-7.0 mm long.

Type Material.-None of the specimens in the type series bears the usual "Sp. figured" label. There is a "Type" label on the pin of one card bearing a male and female and labels like the lectotype, but this "Type" label is thought to have been affixed by Arrow or someone other than Champion (R. Thompson, *in litt.*).

PARALECTOTYPES, HERE DESIGNATED, 7 males, 14 females. GUATEMALA. 2 males, 6 females, no additional data (London); 3 males, 5 females, same data as type (London, Washington); 1 male, 2 females, Tepan (London, Howden). MEXICO. 1 female (London). Locality in doubt, 1 male, Costa Rica, "locality doubtful" in Champion's handwriting (London).

Two of Champion's syntypes are actually *amoenus*. These are 1 male labelled "Orizaba, H.H.S. & F.D.G. Dec. 1887" (London), and 1 male, labelled "Playa Vicente, Mexico, Höge" (London). One male syntype with no data is *dejeanii*.

Distribution.-Map 3. GUATEMALA. Chimaltenango: Tecpán (="Tepan"), Zaragoza. El Quiché: Quiché Mts. Huehuetenango: 25 mi S Huehuetenango. MEXICO. Chiapas: 8 mi N Bochil, Comitán, 12 mi NW Comitán, 14 mi W Comitán, Dolores, Las Margaritas, 8 mi W P N Montebello, 10 mi W P N Montebello, Rancho Nuevo (8.6 mi E San Cristóbal), San Cristóbal de las Casas, 5 mi SE San Cristóbal, 35 mi E San Cristóbal, San Felipe, 2 mi S Simojovel, Teopisca, 2 mi SE Teopisca, 8 mi SE Teopisca, 9 mi SE Teopisca, 28 mi E Tuxtla Gutiérrez. Tabasco: Villahermosa.

In addition to the "Costa Rica" paralectotype, a locality which Champion questioned, there are two specimens in Berlin labelled "Costa Rica, Wagner" and one specimen in Stockholm labelled "Costa Rica, D. Geminger". I suspect these refer to something other than the country now known as Costa Rica.

Specimens were collected in May (1), June, July, August (1), September (4), and December (1).

Specimens examined: 81 males, 63 females. Specimens in: Berkeley, Berlin, Cambridge, Dresden, Eberswalde, Leiden, London, New York, Ottawa, Paris, Stockholm, Washington, Howden, O'Brien.

Remarks.-The figure in the color plate in Champion (1911: Tab. 7, Fig. 25) shows the elytra too short.

The black legged specimens (pattern 4) are primarily from the lower elevations and are often distinguishable on morphological characters. However, no characters appear to be exclusive to one area and the mingling of characters is such that only field work could justify a different treatment.

At 9 mi SE Teopisca H. Howden collected *scintillans* on *Acacia*, an unidentified legume, and on oak. At 8 mi W *P. N. Montebello*, O'Brien and associates collected five *scintillans* on *Juniperus mexicana*; at 12 mi S Comitán they took a series of *scintillans* on *Quercus*.

8. *Hadromeropsis* (*Hadromeropsis*) *micans* Champion

Figs. 70, 119, 139; Map 3

Hadromerus micans Champion, 1911:183; Tab. 7, Figs. 28, 28a. LECTOTYPE, HERE DESIGNATED, female, labelled, "Purula, Vera Paz, Champion," "♀," "Type" on orange-circled disc, "Sp. figured," "B.C.A., Col., IV. pt. 3, Hadromerus micans, Ch.," "Lectotype" on purple-circled disc (London). *See* Type Material.

Diagnosis.-Known only from the female lectotype. Very large and robust. Resembling Guatemalan *scintillans* but apex of ventrite 5 pointed, spermatheca (Fig. 119) with ramus not at all produced, spermathecal duct 7.0 mm long.

Description.-Unique female, length 13.4 mm, width 5.4 mm. Habitus as in Champion (1911, Tab.7, Fig. 28). All scales scintillating green, dense but overlapping only around eye and on specific areas of ventral surface such as coxae. Glabrous areas as in Champion (1911:183 and Tab. 7, Fig. 28). Rostrum with dorso-lateral edges slightly divergent apically where rostrum is approximately as wide as long. Median line glabrous, impressed between eyes, thence obsoletely elevated to apical 0.6 at a vague transverse elevation; epistoma reaching almost to this transverse mark. Epistoma occupying 0.3 of anterior edge of rostrum; epistoma 1.4x longer than wide, its distal emargination extending 0.3 of length of epistoma; 2 scales on epistoma. Segment 2 of funicle 1.2-1.4x longer than segment 1, club 3.2x longer than wide. Prothorax 1.15x wider than long, sides only moderately rounded, slightly flattened dorso-laterally; in profile scarcely convex with basal and apical constrictions faint. Setae of prothorax very fine, erect basally only, as long as 2-3 scales. Postocular vibrissae well developed. Scutellum with a few scales and a few setae. Elytra across humeri 1.5x wider than prothorax. Elytra 3.3x longer than prothorax. Humeri very prominent, interval 5 at base depressed thus further emphasizing humeri. Elytra with post-scutellar area flattened. Tooth at apex of sutural interval approximately as long as 3 scales. Widest interval with extreme of 9 scales abreast, usually 5-7 scales abreast. Setae of alternate intervals longer basally and apically, the longest as long as 9 scales, shorter setae as long as 2 or more scales. Sutural interval on declivity with 9-12 very long erect setae. Strial punctures smaller than a scale. Fore femur 1.36x wider than hind femur, distal flange weak. Fore tibia as in Fig. 70, distal tooth acute, 0.5 as long as width of apical edge. Ventrite 5 (Fig. 139) convex as in *scintillans*, evenly covered with scales as remainder of abdomen; 1.7x longer than wide, sides convergent from base to apex in a blunt point. Spermatheca as in Fig. 119; spermathecal duct 7 mm long.

Type Material.-The syntype from Puebla is described as a paratype of *amoenus* in this paper; its spermathecal duct is only 1.8 mm long.

Distribution.-Map 3. GUATEMALA. Baja Verapaz: 1 female, Purulá (London).

Remarks.-This is possibly only an extremely large and robust specimen of *scintillans*, but the different spermatheca seems to be sufficient justification to let it stand until field observations or more material can elucidate the situation.

The large size and somewhat similar spermatheca bring to mind *cretatus*, but in that species the base of the elytra is distinctly arcuately emarginate instead of straight.

9. *Hadromeropsis* (*Hadromeropsis*) *brevicomus* n. sp.

Figs. 90, 91, 122, 123; Map 2

Diagnosis.-Densely clothed with white (1 female) or iridescent green scales, dorsum usually with a slight coppery or golden lustre in reflected light; glabrous areas of elytra often as wide as one interval, these areas larger on intervals 1, 2, and 3 where they often coalesce to form short, vague, sinuous fasciae. Setae of prothorax in both sexes appressed, very short, as long as one scale on center of disc, on sides maximum length of 2 scales. Endophallic structure (Figs. 90, 91) less than half the length of the aedeagus, bent and very stout proximally, with short flagellum. Spermathecal duct very short, 0.9-1.4 mm long.

Description.-Holotype, male, length 9.0 mm, width 3.2 mm. Scales and glabrous areas as in Diagnosis. Scales especially dense and overlapping on side of rostrum and head, side of prothorax, side of fore coxa, side of meso- and metasternum. Dorsum of head, rostrum and prothorax with glabrous areas irregular in size and placement, as large as 1 to many scales. Glabrous areas of elytra forming 5 irregular sinuous lines, the longest reaching stria 4, the glabrous areas polished and slightly elevated. Rostrum 1.12x longer than wide; dorso-lateral edges distinct, parallel, glabrous. Median line glabrous entire length, impressed between eyes. Dorsal surface of rostrum with faint transverse interantennal elevation at about middle, very slightly concave caudad of elevation; basal glabrous surface punctate, slightly rugose. Epistoma occupying 0.27 of anterior edge of rostrum, 1.3x longer than wide; without scales. Funicle with segment 2 scarcely longer than segment 1; antennal club 3.8-4x longer than wide. Prothorax 1.12x wider than long, convex; sides rounded, much wider than constrictions. In profile pronotum strongly convex basally, less so anteriorly, anterior constriction distinct though weak. Setae of prothorax as in Diagnosis; on disc glabrous base of setae with a faint crescent-shaped elevation, elevation less pronounced on sides. Postocular vibrissae well developed. Elytra across humeri 1.2x wider than prothorax. Elytra 2.6x longer than prothorax. Base of elytra slightly arcuately emarginate between striae 5. Sides of elytra parallel to approximately apical third, thence slightly rounded, apical umbone distinct in outline, apex elongate-rounded, without a tooth. Elytra in profile thick as in dejeanii, but declivity more gradual. Widest interval with 7 scales abreast, most intervals 5-6 scales abreast. Strial punctures moderate; those of sutural interval and interval 2 basally foveate, gradually becoming smaller apicad. Elytral setae of two types; short curved setae on disc as long as 1 scale, becoming longer, straighter on declivity and on sides; alternate intervals, including interval 7, with much longer, straight, erect setae in addition; sutural interval with intermediate length, slightly arcuate setae. Fore femur 1.9x wider than hind femur, strongly swollen, with moderate arcuate flange on distal edge. Fore tibia weakly bowed, apical edge with distinct small lobe near inner edge; distal tooth as long as 0.5 of apical width of tibia; ventral surface with some indistinct sculpturing and near inner edge with very small, shiny tubercles. Metasternum protuberant compared to many species, this especially evident in the broadly concave posterior median pit and the abrupt ledge adjacent to the hind coxa. Ventrite 5 convex, 1.9x wider than long, apex emarginate. Last tergite convex but with high point slightly flattened. Genitalia as in Diagnosis and Figs. 90, 91. Aedeagus 2.4 mm long, aedeagal apodeme 1.1 mm long, tegminal strut 1.1 mm long, endophallic structure 1.0 mm long.

Allotype, female, length 9.3 mm, width 3.7 mm. Differs from type as follows. Scales sparser on mesepisternum and metepimeron (but this not a sexual expression in paratypes). Rostrum more robust, dorso-lateral edges weakly bowed outward. Epistoma 1.4x longer than wide. Prothorax less convex, apical constriction not marked on disc; 1.09x wider than long. All prothoracic setae as long as 1 scale except at extreme anterior and basal edges on sides. Elytra across humeri 1.36x wider than prothorax. Elytra 3x longer than prothorax. Sides of elytra slightly divergent to apical third thence gradually rounded, forming apical umbone, apex triangular with arcuate sides; sutural interval with very weak distal tooth. Sutural interval at summit of declivity with 5 longer setae of graduated lengths. Ventrite 5 slightly convex apically, 1.8x wider than long, apex narrowly rounded; medially with short setae, few scales. Spermatheca (Fig. 122) 0.8 mm long, spermathecal duct 0.9 mm long.

Type Series.-Holotype, MEXICO, Chiapas, 7 mi SW Ocozocoautla, 2500', Aug 1 1974, O'Brien & Marshall, on *Acacia pennatula* (O'Brien). Allotype, same data as type (O'Brien). Paratypes, 5 males, 2 females. MEXICO. Chiapas: 3 males, 1 female, same data as type (Howden, O'Brien); 2 males, El Sumidero, 14 Sept. 1974, G. Bohart, W. Hanson (O'Brien); 1 female, 14 km N. Tuxtla Gutiérrez [Sumidero, approx. 4000'], VII.14.1962, J. M. Campbell (Howden).

Remarks.-Males vary in length from 7.9-9.5 mm and in width from 2.7-3.4 mm. The female paratypes are 9.0-9.5 mm in length and 3.8 mm in width. The female from the type locality is clothed with white scales only, otherwise paratypes exhibit little variation. The green female paratype and one male from El Sumidero are more densely and more evenly squamose, the elytral glabrous areas rarely as wide as an interval. No specimens have scales on the epistoma. The antennal club of males is 3.0-3.8x longer than wide, of females 3.1-4.0x longer than wide. In *dejeanii* the antennal club of males is 2.7-4.0x longer than wide, in females 2.2-3.0x longer than wide.

Five males and three females were dissected. Variation in the male genitalia is as follows: aedeagus 2.3-2.4 mm long, aedeagal apodeme 1.0-1.3 mm long, tegminal strut 1.1-1.3 mm long, endophallic structure (3 specimens) 0.9-1.0 mm long. The spermatheca of the paratype from Tuxtla Gutiérrez is shown in Fig. 123; the duct in this specimen is 1.3 mm long and in the white female is 1.4 mm long.

H. brevicomus appears to be most closely related to *aureus*. With *aureus*, *brevicomus* shares the elevated, often contiguous glabrous areas of the elytra (but in *aureus* they are evenly distributed dorsally and laterally), elevated bases of prothoracic setae (but in *aureus* they are much more tuberculate), only 5 long erect setae on sutural interval on declivity of female (but these longer and straighter in *aureus*), and similar male genitalia (but in *aureus* the endophallic structure is straight proximally). *H. aureus* is known only from Bolivia. D'Orbigny recorded *aureus* from "les mimosas" (see Type Material of *aureus*); *brevicomus* was collected on *Acacia*. Both sexes of *aureus* have a distinct tooth at the apex of the sutural interval; in *brevicomus* there is no trace of a tooth in the male and only a weak tooth in the female.

The name "brevicomus" means "short setae", one of the most distinctive external features of this species.

10. *Hadromeropsis* (*Hadromeropsis*) *aureus* (Blanchard)

Figs. 49, 51, 53, 92-94, 124; Map 4

Hadromerus aureus Blanchard, 1846:201. Type, female, labelled "7247, 34" on underside of green disc; "2248"; "Pl.16 Fig.7" on vertical label on pin; "Museum Paris, De Chiquitos, A. Mojos, D'orbigny

1834"; and on green label in box "H. aureus Blanch. Bolivia, M.J. 'Orbigny" (Paris). See Type Material.

Diagnosis.-Clothed with scales which are yellowish with a metallic lustre in teneral specimens (as the type), becoming white without any metallic lustre in mature specimens; prothorax (Fig. 49) with random glabrous spots ranging from elevated to pustulate; elytra (Fig. 51) with larger glabrous areas, each area usually the entire width of the interval, slightly convex, some areas confluent forming slender sinuous subfasciae. Apex of elytra of male slightly produced into a pair of blunt, divergent teeth (Fig. 53).

Description.-Male, length 8.9-9.2 mm, width 3.2-3.5 mm. Female, length 8.7-10.8 mm, width 3.5-4.3 mm. Color as in Diagnosis. Scales especially dense around eye, in depressed areas of pronotum and on elytra, often imbricate on the latter. Metepisternum sparsely scaled and with a row of long, fine, white prostrate setae, the tip of one overlapping the base of the succeeding one by 0.3-0.5. Setae of head, rostrum, and prothorax appressed, as long as 1 scale. Rostrum 1.2x longer than wide, dorso-lateral edges slightly elevated, parallel or weakly convergent caudally. Epistoma occupying less than 0.3 of anterior edge of rostrum, its apex narrow, rounded or acute. Interantennal line faintly convex at most, rostrum feebly concave caudad of interantennal line. Funicle with segment 2 averaging 1.3x longer than segment 1. Prothorax (Fig. 49) 1.1x wider than long, almost as wide at apical constriction as at basal constriction; disc vaguely flattened or depressed either side of midline, these areas densely squamose, remainder of disc with random bare spots as in Diagnosis, occasional spots confluent. In profile, disc feebly convex or flattened and apical constriction weakly to not at all impressed. Elytra across humeri 1.2x wider than prothorax in male, 1.3-1.4x wider in female; elytra 3.0x longer than prothorax in male, 3.2x longer in female. Sides of elytra parallel basally, thence subparallel, very weakly rounded to the weak apical umbone; apices of elytra of male (Figs. 51, 53) divergent, sutural interval produced in a brief, blunt tooth; apices of female produced in a pair of longer, parallel teeth. Base of elytra straight. Declivity of male oblique, summit gradual; declivity of female more abrupt, suture at summit with row of 4 or 5 much longer setae. Elytra with elevated glabrous areas as in Diagnosis; each glabrous area with a long, fine seta near its caudal edge, the setae of the apical half of elytral intervals 1, 3, and 5, and the declivity longer and more erect than the setae of the basal half. Striae distinct, punctures smaller than a single scale and separated by width of 1-3 scales. Fore coxa without a tubercle but in 2 of 4 males examined with a feeble thickening at inner distal margin. Fore femur of male 2-2.3x wider than hind femur; distally with a moderate, thick flange on inner edge and a few weak tubercles below tibial groove. Fore femur of female 1.5-1.7x wider than hind femur, flange much less developed, tubercles absent. Fore tibia bowed distally; distal tooth as long as 0.6-0.8 of apical width of tibia, with a row of 8-10 small, blunt denticles on inner edge, these obscured by long setae, especially in males. Ventrite 5 of male 2.3x wider than long, rather evenly, sparsely squamose; apex broadly emarginate. Ventrite 5 of female 1.8-2.0x wider at base than long; triangular with apex briefly rounded; almost flat. Male genitalia as in Figs. 92-94; aedeagus 2.4-2.6 mm long; aedeagal apodeme 1.1 mm long (short in relation to length of aedeagus); tegminal strut 1.3-1.4 mm long; flagellum 1.2-1.3 mm long, approximately 0.5 the length of the aedeagus, stiff, heavily sclerotized, gradually tapering from base to apex. Female with spermatheca as in Fig. 124, 0.8-0.9 mm long; spermathecal duct approximately 1.0 mm long, moderately sclerotized at junction with bursa copulatrix.

Type Material.-Apparently described from the unique type in Paris, a teneral female in excellent condition. The numbers on the labels of the type refer to the manuscript catalogue of the d'Orbigny collection: "Chiquitos, sur les mimosas à Santa Ana (Compicon?) 1834" (H. Perrin, in litt.).

Distribution.-Map 4. BOLIVIA. La Paz: Chulumani, Coroico, Nigrillani. Santa Cruz: Santa Ana in Chiquitos Prov.

Specimens were collected in January and August.

Specimens examined: 5 males, 9 females. Specimens in Auckland, Dresden, London, Paris, Rosario de Lerma, Washington, Howden.

Remarks.-One female has some scales very pale green, especially on intervals 6, 7, and 8, as if a vague remnant of an elytral vitta, and indicating the possibility of all-green or green maculate specimens.

In addition to the diagnostic characters, aureus differs from meridianus and gemmifer in the longer segment 2 of the funicle, more strongly developed femoral flange, and mostly imbricate scales of elytra. From cretatus, another all white species, aureus differs in the prothoracic sculpture, strial punctures larger, setae of alternate intervals longer, base of elytra straight, and apex of elytra produced. See Remarks on brevicomus for additional comparisons.

The name aureus is appropriate for the type specimen which is teneral and consequently golden, but "argenteus" which appears on the Dresden specimens would better describe mature specimens.

11. Hadromeropsis (Hadromeropsis) cretatus (Champion)

Figs. 50, 52, 54, 95-97, 125; Map 3

Hadromerus cretatus Champion, 1911:184, Tab. 7, Fig. 31. Type, female, labelled "Caldera, 1200 ft, Champion" (London). See Type Material.

Diagnosis.-Densely clothed with imbricate, pure white scales, with small glabrous spots randomly scattered over entire dorsum (Fig. 52); the glabrous spots not elevated above scales and nowhere with tubercles. Apices of elytra of male individually briefly rounded (Fig. 52); apices of female with a sharp tooth concealed by long setae (Fig. 54). Fore femur with very weak flange on inner edge distally. Flagellum approximately twice as long as aedeagus, evenly sclerotized, tapered to apex. Spermathecal duct 6.0-6.5 mm long.

Description.-Male, length 10.1-11.2 mm, width 3.9-4.4 mm. Female, length 10.8-12.5 mm, width 4.6-5.0 mm. Color as in Diagnosis. Rostrum broad, 1.1x or less longer than wide; obsoletely concave (male) or flat (especially female); median line only obsoletely impressed in one male, otherwise without sculpture. Dorso-lateral edges of rostrum abrupt, prominent, convergent caudally; in dorsal view sides of rostrum including scrobe clearly visible. Epistoma long, narrow, its apex vague, rounded; occupying less than 0.3 of anterior edge of rostrum. Funicle with segment 2 averaging 1.4x longer than segment 1. Prothorax in dorsal view 1.0-1.3x wider than long; sides strongly, evenly rounded between constrictions; squamose as in Diagnosis. In profile (Fig. 50) disc weakly convex, apical constriction absent dorsally. Elytra across humeri 1.3x wider than prothorax in male, 1.4x wider in female. Elytra 2.9x longer than prothorax in male, 3.2x longer in female; sides parallel basally, thence subparallel, very weakly rounded to the weak apical umbone; apices of elytra as in Diagnosis. Base of elytra arcuately emarginate between striae 5. Declivity very gradual; in female sutural interval at summit of declivity with a row of 4-14 setae approximately 3x as long as adjacent setae. Glabrous spots of elytra each with a single seta not conspicuously longer or straighter on alternate intervals. Strial punctures (Fig. 52) very small and inconspicuous; in abraded areas a puncture seen to be smaller than the scar of a scale and very shallow; punctures separated by 2-5 scales. Fore femur 2.1x wider than hind femur in male, 1.6-1.8x wider in female; with very feeble flange on inner edge distally. Fore tibia weakly bowed, similar to that of rufipes (Fig. 72), distal tooth as long as width of apex in male, slightly shorter in female; with a row of small teeth on inner edge, with only a few minute tubercles on posterior surface distally. Ventrite 5 of male 2-2.2x wider at base than long, rather evenly, sparsely squamose; apex broadly truncate. Last tergite of male slightly transversely flattened. Ventrite 5 of female 1.8-2.0x wider at base than long, apex narrowly rounded; feebly convex. Male genitalia as in Figs. 95-97 and Diagnosis; aedeagus 3.5-3.6 mm long; aedeagal apodeme 1.9 mm long; tegminal strut 1.9-2.3 mm long; flagellum 5.4-6.5 mm long. Female with spermatheca as in Fig. 125; spermathecal duct 6.0-6.5 mm long.

Type Material.-Described from a unique with the head slightly deformed or injured in life over left eye.

Distribution.-Map 3. COSTA RICA. Alajuela: 1 male, Grecia, 14 May 1977, R. Campos (Howden). San José: 1 male, San José, Feb. 28, 1924, Nevermann Coll. (Washington); 1 male, Monte Rey, Río Candelaria, 1946 (San José). No locality given: 1 male, 3 females, Septiembre, Paul Serre (Paris, Howden); 1 male, 1 female (Cambridge). PANAMA. Chiriquí: 1 female, Caldera, 1200 ft., Champion (the type) (London).

Remarks.-Champion's description, "the rostrum canaliculate and moderately excavate" might appear to contradict my description. His "canaliculate" means the median line is finely impressed and his "excavate" refers to the caudal margin of the epistoma. Except in two males, the median line is not modified in any way; it is usually completely covered with scales as well, though the scales may not always be contiguous at the median line. Another point of confusion is found in the "flattened, tuberculiform" glabrous spots of the elytra; these spots are indeed flattened; in none of the specimens examined did I see anything I would call tuberculiform.

On the abdomen and fore coxae of one female there are individual scattered iridescent green scales which are smaller than the white scales.

The very distinctive habitus should make this species immediately recognizable. Within Central America, the only other white species is gemmifer which has the fore coxa with a tubercle, fore tibia tuberculate on posterior surface, female ventrite 5 notched apically and genitalia very different.

12. Hadromeropsis (Hadromeropsis) rufipes (Champion)

Figs. 62, 72, 138, 367; Map 2

Hadromerus rufipes Champion, 1911:185; Tab. 7, Figs. 34, 34a. Type, female, labelled "Costa Rica, P. Biolley," "Arcangeles, 1500-1700 m.," "♀," "Arcangeles 1200 m [in pencil] 1192 [in ink]" on folded piece of paper, "Type" on orange-ringed disc, "Sp. figured.," "B.C.A., Col., IV. pt. 3, Hadromerus rufipes, Ch." (London).

Diagnosis.-Based on female only. Very large. Apparently normally covered with two sizes of scintillating green and some opalescent scales, the larger scales forming a vitta on elytral interval 4 as depicted by Champion (1911, Tab. 7, Fig. 34) as well as a vitta on interval 8; both elytral vittae may be continuous with narrow vittae on prothorax. Ventrite 5 (Fig. 138) smooth and polished medially, rounded apically. Spermathecal duct 2.2 mm long.

Description.-Female, length 13.0-13.4 mm, width 5.0-5.2 mm. Black, legs and antennae rufous. Normally covered with scales as in Diagnosis; ventrally scales dense on sides of abdomen, mostly absent on central half of ventrites 1 and 2, sparser and smaller on ventrites 3 and 4 centrally, sparse basally on ventrite 5, apical half of ventrite 5 with only 1 scale; legs very sparsely clothed with small scales. Rostrum with dorso-lateral edges basally indistinct, rounded; edges apicad of interantennal line well defined, approximately parallel. Surface of rostrum almost flat, median line finely impressed between eyes; distal 0.3 of rostrum deflected, here very slightly wider than long. Surface of head and rostrum with scattered fine punctures which may be concealed by scales in fresh specimens. Epistoma occupying 0.3 of anterior edge of rostrum, approximately as wide as long, its distal emargination extending 0.3 of length of epistoma. Segment 2 of funicle 1.1x longer than segment 1; club 2.6-2.8x longer than wide. Prothorax 1.2x wider than long, sides only moderately rounded, slightly flattened dorso-laterally, large scales thus protected from abrasion by the depression consequently forming a vitta; in profile prothorax scarcely convex, apical constriction absent, basal constriction very faint. Disc of prothorax medially apparently naturally glabrous, smooth and polished. Setae of prothorax very fine, as long as 1-2 scales, appressed(?). Scutellum mostly glabrous with some small scales and setae. Elytra across humeri 1.4-1.6x wider than prothorax. Elytra 3.8x longer than prothorax. Base of elytra weakly produced or not between striae 5, thence slightly obliquely deflected. Sides of elytra parallel for basal 0.15, thence 1.1x wider than across humeri and parallel to middle, thence very gradually convergent to apex, the apical umbone scarcely to distinctly evident in outline. Elytral sutures briefly divergent on declivity below erect setae, ending in weak to prominent pair of diagonally directed teeth whose apices overlap (Fig. 62).

Edge of elytra opposite ventrite 5 thickened and prominent, interval 10 depressed in this area and striae 9 and 10 here indistinct but ending apically in several foveae which further emphasize the distal tooth. Strial punctures very fine, smaller than a small scale. Setae of elytra difficult to assess because of abrasion; apparently setae of basal portion of intervals 3, 5, and 7 longer, as long as 2-3 of the larger scales; all setae very fine and erect. Fore femur 1.3x wider than hind femur, distal flange arcuate but weak. Fore tibia as in Fig. 72 or apical edge with inner lobe as in *micans* (Fig. 70). Ventrite 5 (Fig. 138) 1.8x wider than long, flat or feebly convex, medially smooth and polished; rufous apex punctate. Spermatheca as in Fig. 367; spermathecal duct 2.2 mm long (type not dissected).

Distribution.-Map 2. COSTA RICA. 1 female, "Arcangeles", 1200-1700 m (*London*). 1 female, [San José] Escazú, Coll. Kuschel (Auckland).

Extensive questioning in Costa Rica and elsewhere was not successful in locating "Arcangeles", but it was frequently suggested that it is the name of a farm or estate.

Remarks.-Both specimens are abraded and the glabrous areas of the elytra are covered with scars of small scales. The elytral vittae should still be evident in fresher specimens because of the different nature of the scales in the vittae - much larger and overlapping compared to the scales of adjacent intervals.

H. cretatus also occurs in Costa Rica and resembles *rufipes* in the very fine elytral punctures and occasionally bears scintillating green scales on the ventral surface. Compared to *cretatus*, *rufipes* is elongate, has a shorter second funicular segment, more attenuate elytral apex, and much shorter spermathecal duct.

From *gemmifer*, another large species possibly occurring in Costa Rica, *rufipes* differs in the absolutely smooth, non-tuberculate surface of the prothorax and elytra and ventrite 5 rounded apically instead of emarginate. The coxal tubercle is absent in *rufipes* but the other characters are often more easily viewed.

13. *Hadromeropsis* (*Hadromeropsis*) *superbus* (Heller)

Figs. 2, 3, 98-100, 126; Map 4

Hadromerus superbus Heller, 1921:29. LECTOTYPE, HERE DESIGNATED, male, labelled "Rep. ARGENTINA, Prov. Tucuman, II 1906, C. Bruch," "K.M. Heller," "Typus" on green rectangle with black border, "Hadromerus superbus Heller i.1.," "Hadromerus superbus m. i. 1." handwritten (Bruch Coll., Buenos Aires). *See* Type Material.

Diagnosis.-Clothed with iridescent green scales only or with both green and lavender iridescent scales; prothorax with random glabrous areas not elevated; elytra with random glabrous areas rectangular, usually the entire width of an interval, scarcely elevated. Eye flattened (Fig. 2). Prothorax (Fig. 2) much wider than long, sides very strongly rounded.

Description.-Male, length 7.2-8.1 mm, width 2.8-3.0 mm. Female, length 7.4-9.6 mm, width 3.1-3.8 mm. Vestiture as in Diagnosis. Integument and scales very shiny, sometimes with golden lustre. Lavender scales when present randomly interspersed with green scales on head and prothorax; on elytra lavender scales concentrated on disc and intervals 9 and 10 leaving intervals 7 and 8 entirely green; often with a vague green pattern basally and medially. Rostrum with dorso-lateral edges abrupt from apex to middle of eye, parallel or slightly bowed outward; sides perpendicular or concave between edge of dorsum and scrobe and thus not visible from above; sides convex below ventral margin of scrobe. Rostrum 1.2x longer than wide; dorsal surface shallowly concave; frons with a small interocular fovea; median line glabrous. Epistoma occupying 0.3 of anterior edge of rostrum. Funicle with segments 1 and 2 usually equal in length. Eye as in Diagnosis and Fig. 2. Prothorax as in Diagnosis and Figs. 2, 3, averaging 1.2x wider than long, convex, the apical constriction weak dorsally. Postocular vibrissae arising from a small knob. Elytra across humeri averaging 1.2x wider than prothorax in male, 1.3x wider in female. Elytra of male and female averaging 3.0x longer than prothorax. Shape of elytra as in Figs. 2, 3. Apices of elytra of male conjointly rounded, with a minute tooth in some; in female with small distinct tooth. Elytra with a single, fine seta arising from each glabrous spot, the setae of alternate intervals erect on apical half of elytra and much longer; setae much more numerous on sutural interval on declivity, but not clustered there, all setae slightly longer in female than in male. Strial punctures approximately as large as a scale, separated by approximately one diameter. Fore femur of male 2.0x wider than hind femur, fore femur of female 1.4-1.6x wider than hind femur; inner edge both sexes with a brief arcuate flange sometimes separated from femur by a crease, edge of flange with a few minute tubercles, a few tubercles of same size below tibial groove. Fore tibia bowed distally; distal tooth approximately 0.5 as long as width of apex in male, shorter in female; inner edge with an average of 10 small blunt denticles. Ventrite 5 of male 2.1x wider than long, apex truncate, edges deflected. Ventrite 5 of female 1.7-1.8x wider at base than long, flattened, side edges deflected, apex narrowly rounded. Male genitalia as in Figs. 98-100; aedeagus 1.5-2.1 mm long, aedeagal apodeme 0.9 mm long, tegminal strut 0.9-1.2 mm long, flagellum 1.6 mm long. Spermatheca as in Fig. 126; spermathecal duct 1.0-1.3 mm long.

Type Material.-PARALECTOTYPES, HERE DESIGNATED, 6 females: 1 female, labelled "Rep ARGENTINA, Prov. Tucuman, I 1906, C. Bruch" (Buenos Aires); 1 female, labelled "Rep. ARGENTINA, Prov. Catamarca, 7.III.1907, C. Bruch," "Typus" on green rectangle, "Hadromerus superbus Heller" (Buenos Aires); 1 female, labelled "Rep. ARGENTINA, Prov. Tucuman, 190_, C. Bruch," "1906, II," "superbus TYPUS" on red rectangle (Dresden); 2 females, labelled "Argentina, Prov. Salta, mir 1905, Steinbach" (Dresden); 1 female, labelled "Rep. ARGENTINA, Prov. Cordoba, 189, C. Bruch", "Cotypus" (Paris). Heller does not list the province of Catamarca but the specimen from there is considered a paralectotype because it bears a type label.

Distribution.-Map 4. ARGENTINA. Catamarca. Córdoba: Alta Gracia, La Granja, Quiscate. Jujuy: Ledesma. Salta: Cerrillos, Cerro San Bernardo, La Merced, Salta, Viñaco (15 km S. El Carril). Santiago del Estero. Tucumán.

Specimens were collected from December through March.

Specimens examined: 11 males, 72 females. Specimens in Auckland, Berlin, Buenos Aires, Curitiba, Dresden, Paris, Washington, Howden.

Remarks.-This is a very distinctive species, readily recognized by the flattened eye alone. The green and lavender vestiture is likewise unique but six specimens appeared oily and no color was present at all, the specimens being a uniform dark brown.

Specimens which I collected were very lively and appeared quite colonial. The five specimens taken at Viñaco were on one branch of Mimosa farinosa Grisebach and landed on the beating sheet simultaneously. The 17 specimens from Cerrillos were taken on four different days, all from one very large Prosopis chilensis (Md.) Stuntz, mostly on one branch. At Cerro San Bernardo six specimens were taken on Piptadenia macrocarpa Benth. and one very teneral specimen on herbaceous weeds.

The gemmifer Group

14. gemmifer (Boheman)
15. meridianus n. sp.
16. batesi n. sp.

Characteristics of Group.-Glabrous or densely clothed with scales, elytra without color pattern except that formed by random bare spots or more dense scales. Fore coxa with a tubercle on inner distal edge opposite trochanter (Fig. 57); tubercle less prominent in female (Fig. 58); tubercle most readily observed from a caudal or oblique angle as in the illustrations. Fore tibia of male on inner edge with a row of cylindrical tubercles, in female these are more acute and flattened like a tooth. Male with endophallic structure variable, flagellum well developed or indistinct. Female without bursal sclerites.

Remarks.-The distinct coxal tubercle which characterizes this group is sometimes present in a greatly reduced state in aureus (scintillans group) and in beverlyae (argentinensis group). The tubercle is most strongly developed in gemmifer. This and the absence of both a bursal sclerite and paired lateral sclerites in the female definitely place gemmifer with the flagellate species in spite of the indistinct flagellum.

In the three species in this group the fore tibia is bowed distally, the distal tooth is long and acute, and the inner apical lobe is moderate.

14. Hadromeropsis (Hadromeropsis) gemmifer (Boheman)

Figs. 6, 55-59, 61, 101-103, 127; Map 4

Hadromerus gemmifer Boheman, 1845:418. Faust, 1892:1; Champion, 1911:184. Type, female, labelled "Typus" on a red rectangle outlined in black; "129" printed on white; "762" written on white; "Hadromerus gemmifer, Reiche, Venezuela, Mannerheim" written on white (Stockholm).

Hadromerus scabricollis Faust, 1892:1. LECTOTYPE, HERE DESIGNATED, male, labelled "Colonia Tovar, E. Simon, I.II.88," "Museum Paris, Venezuela, E. Simon 1897," "J. Faust det. 1897," "type" handwritten on white, "Hadromerus scabricollis n. sp.," "TYPE" printed on red (Paris). See Type Material. NEW SYNONYMY.

Diagnosis.-Glabrous, shiny black (84% of males, 20% of females) or densely squamose with scales of iridescent or scintillating green (12% of males, 38% of females), iridescent cupreous or mixed colors (1% of males, 31% of females), or non-iridescent white or greenish (3% of males, 11% of females). Elytra of male (Fig. 6) slightly wider across humeri, tapering gradually to declivity, or parallel-sided. Female with ventrite 5 distinctly notched at apex (Fig. 59). Aedeagus with granules of dorsum extending onto sides distally. Internal sac (Figs. 101-102) with 2 pairs of inflatable lobes (only the dorso-lateral pair spiculate), and one long ventral lobe, internally with ejaculatory duct leading to a heavily sclerotized structure which forms the ventral surface of a dorsal cupped lobe and beneath this with a short, needle-like, free sclerite like a rudimentary flagellum. Spermatheca with nodulus distinctly shorter than cornu (Fig. 127).

Description.-Male, length 8.5-12.3 mm, width 2.8-4.0 mm. Female, length 9.0-15.0 mm, width 3.6-5.3 mm. Color as in Diagnosis, naturally glabrous (i.e, not glabrous because of abrasion) specimens with integument shiny and smooth, lacking scars of scales, but often with a few minute iridescent scales especially in the depressions of apex of elytra, and with occasional full-sized scales ventrally. All with a dense patch of scales on hind coxa and in a metasternal spot anteriorad to hind coxa. All sculpture stronger and more conspicuous in glabrous specimens. Rostrum moderately broad (Figs. 55, 56) ranging from flat (some females) to deeply triangularly concave; median line varying from unimpressed to distinctly impressed between eyes to their caudal margin. Epistoma long, narrow, occupying approximately 0.3 of anterior edge of rostrum. Eye moderately large, convex. Antennal funicle with segment 2 equal to or slightly longer than segment 1. Prothorax of male almost spherical, as wide as long, wider in female; evenly sculptured on disc and sides with faint to strong, dense tubercles each with an inconspicuous recumbent seta at its anterior edge, setae all directed toward middle of anterior margin of prothorax. Scutellum with or without scales; densely clothed with long, often broad, setae which may conceal the scales under them. Elytra of male as in Diagnosis and Fig. 6. Elytra of male 1.1-1.2x wider across humeri than across prothorax; elytra 2.5-3.0x longer than prothorax. Elytra of female 1.26-1.4x wider across humeri than across prothorax; elytra 3.0-3.3x longer than prothorax. Elytra of female slightly wider at about middle. Strial punctures small, striae regular but somewhat indistinct on declivity, this especially evident in glabrous specimens. Intervals each with a sparse row of fine setae, those of alternate intervals becoming longer and straighter towards apex of elytra. Apical umbone weak. Declivity of male in profile oblique, slightly concave or not; of female perpendicular or almost, usually concave. Sutural interval at summit of declivity in female only with very long, stout, horizontal setae. Apices of elytra briefly individually rounded in male; in female, produced in a small tooth approximately as long as a tarsal claw. Tubercle of fore coxa well developed (Figs. 57, 58). Fore tibia of male on inner edge with dense row of small, blunt teeth or elongate tubercles; posterior surface (Fig. 61) with similar multiple blunt tubercles, especially distally, the tubercles rapidly becoming smaller away from inner edge; fore tibia of female with denticles of inner edge sparser, sharp, without multiple tubercles posteriorly. Ventrally with very long, fine setae on prosternum restricted to small median area. Ventrite 5 of male 1.8-2.0x wider across base than long, almost flat, apex broadly truncate-emarginate, finely punctate apically. Ventrite 5 of female as in Diagnosis and Fig. 59; 1.8-1.9x wider across base than long, almost flat. Aedeagus ranging in length from 3.1-4.2 mm, averaging 3.6 mm. Internal sac as in Figs. 101-103 and Diagnosis; Spermatheca as in Diagnosis, Fig. 127; spermathecal duct 1-1.5 mm long.

Type Material.-The lectotype designated for *scabricollis* Faust is the only specimen labelled "Colonia Tovar, E. Simon" as in the description. Three PARALECTOTYPES, HERE DESIGNATED, 1 male, labelled "Columbia, Baden" and 2 females, labelled "Venezuela," all three labelled "Type" on red paper and with a gold square in Dresden apparently complete Faust's type series. The Simon collection was acquired by the Paris Museum in 1897 which seems to explain the label "J. Faust det. 1897," 5 years after the publication of the description. The type locality was described by Simon in a discussion of his three-month trip to Venezuela (1889:169-171).

Distribution.-Map 4. Central America and northern Colombia and Venezuela between 1000 and 1800 m. GUATEMALA. Alta Verapaz: Baleu, mcpio. San Cristobal Verapaz. COSTA RICA. "locality doubtful". PANAMA. Darien. COLOMBIA. Cesar or Guajira ["Magdalena"] : Socorpa Mission, Sierra de Perija. Cundinamarca: "Bogota." Norte de Santander: Chinácota. Magdalena: Río Frío, Cerro Patron. VENEZUELA. Aragua: Choroní, Colonia Tovar, Rancho Grande. Distrito Federal: Caracas, Caracas Valley, Parque Nacional Avila. Mérida. Miranda: El Hatillo, Nucleo El Laurel. Táchira: Cordero. Zulia: Maracaibo.

Specimens were collected in every month except February and March, and have been taken on *Bracatinga brasiliense*, *Cassia*, *Mimosa*, and peach foliage.

Specimens examined: 157 males, 198 females. Specimens are in most collections studied.

Remarks.-This is a highly variable species superficially resembling *Hadrorestes* in the characters of the vestiture and the punctuation of striae 9 and 10 which are somewhat confused in glabrous specimens but distinct in squamose specimens. The variation in the concavity of the dorsal surface of the rostrum is so extreme, as is the color, that specimens of *gemmifer* can look extremely different. Two specimens are a deep iridescent ultramarine and one is a uniform non-metallic pastel green. One extreme male from Venezuela (Miranda) has the prothorax wider than long and with faint lateral depressions on the disc.

All the Central American and Sierra de Perija specimens (total of 25) are glabrous black and robust, but the single specimen from Magdalena, the only record between these two areas is an iridescent green male. *H. gemmifer* is the only predominantly black species in North or Central America (but *see rufipes*).

15. Hadromeropsis (Hadromeropsis) meridianus n. sp.

Figs. 4, 5, 60, 104-107, 128, 129; Map 4

Diagnosis.-Similar to gemmifer, but: Male with sides of elytra not tapered from humeri. Apical elytral umbone weaker in both sexes. Female with apex of ventrite 5 rounded instead of emarginate. Aedeagus with granules confined to dorsal surface; internally with flagellum (Fig. 105) approximately as long as aedeagus. Spermatheca (Figs. 128, 129) with nodulus long and straight, usually much longer than cornu.

Description.-Holotype, male, length 9.8 mm, width 3.9 mm. Black, densely clothed with scintillating green, often overlapping scales. Scales not noticeably more dense on hind coxa; prothoracic tubercles and random spots on elytra naturally glabrous. Rostrum 1.1x longer than wide, with a triangular concavity basad of interantennal line, the latter weakly but distinctly elevated; median line impressed between anterior half of eyes. Antenna with segment 2 of funicle equal to segment 1. Prothorax 1.2x wider than long, sides strongly rounded between constrictions, sculpture consisting of very weak setiferous tubercles as in gemmifer. Scutellum densely squamose with overlapping scales. Elytra (Figs. 4, 5) as in gemmifer male, except sides very slightly wider to and caudad of middle, summit of declivity in profile very broadly arcuate, not abrupt as in Fig. 5, apical umbone almost imperceptible, apices of elytra very briefly produced into a knob. Fore coxal tubercle well developed. Fore femur 2.1x as wide as hind femur. Fore tibia with tubercles of posterior surface much less numerous than average gemmifer male, but more numerous than in an extremely sparsely tuberculate gemmifer male. Caudal surface of ventrites 2, 3, and 4 perpendicular, approximately equal in height. Antero-lateral corner of ventrites 4 and 5 with a deep pit. Ventrite 5 slightly convex, 2.1x wider at base than long, shorter and apex more broadly emarginate than in gemmifer male. Aedeagus as in Diagnosis, Fig. 104, 1.9 mm long; aedeagal apodeme 1.4 mm long; tegminal strut 1.9 mm long; internally with flagellum (Fig. 105) approximately 2.5 mm long, strongly sclerotized for proximal 0.3, distal remainder filamentous.

Allotype, female, length 10.3 mm, width 4.0 mm. Like holotype, except elytra in profile with disc evenly convex, highest at middle, summit of declivity more distinct, declivity slightly oblique, not concave; with elongate setae on sutural interval graduated in length, not numerous. In dorsal view sides of elytra gradually convergent from middle to apex, apices ending in a tooth shorter than the tarsal claw. Fore leg as in gemmifer female; fore femur 1.6x wider than hind femur. Ventrite 5 (Fig. 60) rounded at apex, 1.7x wider at base than long. Spermatheca as in Diagnosis, similar to Fig. 128; spermathecal duct 1.5 mm long.

Type Series.-Holotype, COLOMBIA, Cundinamarca, Monte Redondo nr. Bogota, 1500-1600 m, VI.27.1947, L. Richter Coll., Frank Johnson Donor (New York). Allotype, same data as type (New York). Paratypes, 8 males, 7 females. COLOMBIA. Cundinamarca: 6 males, 2 females, same data as type or [1] 1400 m, VI.26.1947 (New York, Howden); 1 female, Bogota, v. Lansberge (Leiden); 1 female, Cordillera de Subia between

Bogota and Girardot, 2300 m, VII.24.1947, L. Richter Coll., Frank Johnson Donor (New York); 1 male, Quetame, IX-44 (San Francisco). Tolima: 1 male, 3 females, Ibague, Fr. Claver (Paris). BRAZIL. 1 female, Amaz., Bowring 63.47 (London).

Remarks.-The specimens from Ibague and "Amaz." are uniformly larger (male, length 10.0 mm, width 3.6 mm; females, length 11.7-12.5 mm, width 4.9-5.2 mm) than the specimens with more explicit data from Cundinamarca (males, length 8.5-10.4 mm, width 3.0-3.9 mm; females, length 9.1-11.1 mm, width 3.6-4.1 mm). All specimens are densely squamose. The three males and two females that appear to be glabrous as in the glabrous gemmifer are actually squamose when viewed under magnification, the scales being transparent due in part to a teneral condition. The elytral shape of both sexes exhibits little variation and is rather conspicuously different from that of gemmifer. The aedeagus ranges in length from 2.4-3.0 mm (6 males dissected), thus smaller and with no overlap in size with gemmifer. Other parts of the male genitalia vary as follows: aedeagal apodeme 1.4-1.5 mm long, tegminal strut 1.5-1.9 mm long, flagellum 2.0-2.7 mm long. Length of spermathecal duct is 1.3-1.5 mm long.

The spermathecal duct is scarcely modified in length, approximately the same length as in gemmifer, and seems short for the length of the flagellum. I interpret this not as a different system from other flagellate species, but as evidence of recent change, a view supported by the closeness of meridianus and gemmifer.

The name "meridianus" means southern and alludes to the range being more southern than that of its sister species gemmifer.

16. Hadromeropsis (Hadromeropsis) batesi n. sp.

Figs. 63-65, 108-111, 130; Map 4

Diagnosis.-Rostrum (Fig. 63) long and dorsally narrow, the dorso-lateral edges prominent (almost keeled) and convergent from apex to head, the area between concave. Fore femur of male distally with the posterior edge enlarged into an arcuate flange (Fig. 65). Flagellum as long as or longer than aedeagus.

Description.-Holotype, male, length 11.4 mm, width 4.5 mm. Black, densely clothed with scintillating green scales; disc and sides of prothorax with small glabrous black areas; elytral intervals with irregular, random glabrous areas occasionally confluent; all glabrous areas of dorsum slightly elevated (squamose areas consequently slightly depressed), smooth and shiny, and with a single seta. Rostrum as in Diagnosis, Fig. 63, 1.5x longer than width at interantennal line, the dorso-lateral "keel" extending beyond anterior edge of eye; in dorsal view, scrobes completely visible, dorsally rostrum only about 0.8 ventral width. Mandibular scar very prominent (Fig. 64). Epistoma occupying 0.3 of anterior edge of rostrum. Antenna with segment 2 of funicle 1.7x longer than segment 1. Prothorax 1.2x wider than long; sides strongly rounded, 1.4x wider than basal constriction; 1.2x wider at basal constriction than at apical constriction. Disc in profile with basal constriction strong, apical constriction absent, thickest at basal 0.7, feebly arcuate to apex. Glabrous elevated spots of prothorax becoming weakly tuberculate laterad, each with a very fine, short, inconspicuous, recumbent seta; no other setae on disc or sides. Postocular vibrissae very well developed, arising from a prominent knob. Scutellum densely squamose, without setae. Elytra across humeri 1.3x wider than prothorax; elytra of paratypes averaging 2.7x longer than prothorax, sides almost parallel, apical umbone weak. Declivity gradual, oblique. Apices of elytra unmodified. Glabrous spots on base of elytra with minute, recumbent setae; apicad setae gradually becoming erect, stiff, dark, but still fine, until all on declivity are erect; summit of declivity without additional or longer setae. Fore coxa with tubercle well developed, but left tubercle abraded in type. Fore femur enormously thickened, 1.2x wider than head between outer edge of eyes, 2.7x wider than hind femur; with a brief arcuate flange on inner edge distally and a few weak tubercles in tibial groove beside flange. Distal end of fore femur (Diagnosis, Fig. 65) with posterior flange, inner surface of flange with a few scales and setae. Fore tibia proximally peculiarly flattened and twisted downward (Fig. 65); inner edge with 9 small, blunt teeth (or elongate tubercles); distally with a posterior lobe similar to but smaller than that of beverlyae. Ventrite 5 broadly truncate-emarginate at apex, 2.0-2.2x wider than long in paratypes. Genitalia as in (Figs. 108-111); aedeagus 3.2 mm long; flagellum (Fig. 108, 110) as long as aedeagus. Spiculum gastrale as in Fig. 111; apex of spiculum gastrale in ventral view with stalked sclerites arising from first connecting membrane as in Fig. 109 (see Remarks under genus).

Allotype, female, length 12.3 mm, width 5.1 mm. Differs from type as follows. Occasional scales, especially on fore legs, vivid blue. Segment 2 of funicle 1.4x longer than segment 1. Prothorax 1.3x wider than basal constriction. Elytra 1.4x wider across humeri than prothorax; elytra 3.1x longer than prothorax; sides of elytra only slightly wider medially than in type, apical umbone scarcely stronger than in type; sutural interval below summit of declivity with 6 dark setae of increasing then decreasing length; apex of sutural interval attenuated into brief tooth. Fore femur 0.8x as wide as head between outer edge of eyes, 1.5x as wide as hind femur; flange of inner edge greatly reduced and tubercles absent; without flange on distal end of fore femur. Fore tibia unmodified proximally; inner edge with 5 small, sharp teeth and several denticles; posterior lobe absent. Caudal surface of ventrites 2, 3, and 4 equal in height. Ventrite 5 triangular, 2x as wide at base as long, very weakly convex, apex rounded. Spermatheca of paratypes as in Fig. 130, nodulus slightly deflected; spermathecal duct 1.7-2.0 mm long, sinuous and much wider at bursa copulatrix.

Type Series.-Holotype, BRAZIL, Pará, Santarém (Cambridge). Allotype, BRAZIL, Santarém, 151 (Washington). Paratypes, 36 males, 16 females. BOLIVIA. Pando: 1 male, 1 female, Tambopatha Hath, Lat. 13° 5', Long. 69° GR, Cap[itain]es Mailles & Vincent, 1914 Août (Paris). BRAZIL. No other data: 1 female, Bates (London); 2 males, 1 female, E.A. Klages Coll. (Ithaca); 1 male, Lower Amazon (Ithaca). Minas Gerais: 1 male, Ponte Nova, May, 1899 (São Paulo). Pará: No other data, 2 males (London); 1 female, Santarem, Coll. Kuschel (Auckland);

2 females, Santarem (Washington); 1 male, Santarem, Amazonas, Staudinger and Bang-Haas (Eberswalde); 20 males, 6 females, Santarem, Klages Coll'n Exotic Coleop. Acc. No. 2275 or 2966 (Pittsburgh, Howden); 1 male, Tapajos (London). PERU. 1 female, Chaquimayo, Coll. Kuschel (Auckland). Locality unknown or questionable: 2 males (Cambridge); 1 male, "Costa Rica"* (London); 4 males, 3 females, "Panama"** (4) F. Psota Coll. (Chicago, Howden).

* The Costa Rica label is identical to some which are labelled "Locality doubtful."

** This could be Panema, a Bates collecting area near Santarém, improperly transcribed to Panama (Bates, 1910:189). The Psota Collection locality labels are often incorrect and Panama being so far out of the documented range of *batesi*, the Costa Rica and Panama localities are questionable.

Remarks.-Males vary in length from 8.5-11.2 mm and in width from 3.3-4.4 mm. Females vary in length from 9.6-13.5 mm and in width from 4.1-5.5 mm. The rostrum is consistently long and narrow facilitating quick identification of *batesi* among the many green species. The female specimen from Peru is 13.5 mm long, 1.5 mm longer than any other female. It also differs in the color of the scales of the fore tibia which are a vivid lavender. The only other obvious variation in the paratypes is in the degree of development of the fore femur of the male. In the least developed, it is 2.3x wider than the hind femur and the distal flange is also much smaller.

This spectacular species is named in honor of Henry Walter Bates, who collected at least one of the above paratypes, and to commemorate his 11 years spent collecting specimens and recording "aspects of nature under the equator" (Bates, 1910, Title page).

The *argentinensis* and *nobilitatus* Groups

These two groups represent subdivisions of a unit and the groupings are primarily for the taxonomist's convenience. In both groups the internal sac of the aedeagus has patches of spicules, spiculate inflatable lobes, a very heavy internal sclerite which is condyle-shaped at its anterior (proximal) end, a dorsal inflatable cupped lobe near the proximal end of the internal sclerite, and the apex of the internal sac membranous. Females of the species have a complex, somewhat funnel-shaped sclerotization inside the bursa copulatrix at the end of the spermathecal duct; spermathecal duct moderate in length, spermatheca in one plane except nodulus slightly angled in *fasciatus*. The vagina in all species has longitudinal faint to moderate sclerotized lines (Figs. 182, 188).

The groups do not readily lend themselves to interpretation from museum specimens only. Apparently the disruption of the habitat of the coastal Brazilian forests is reflected in confusing phenotypes. In several instances in the *nobilitatus* and *argentinensis* groups, a more northern taxon has a Santa Catarina form which is morphologically different and more subdued in color.

The *argentinensis* Group

17. *togatus* (Boheman)
18. *argentinensis* (Hustache)
19. *plebeius* n. sp.
20. *pulverulentus* n. sp.
21. *pallidus* n. sp.
22. *speculifer* n. sp.
23. *beverlyae* n. sp.

Characteristics of Group.-Metallic lustre infrequent. Elytra without tubercles except *plebeius* and *beverlyae*. Fore femur without flange on inner edge distally except *beverlyae*. Fore tibia almost straight. Female ventrite 5 smooth and highly polished in many species. Internal sac of male with ventral plate absent, or present but not free, forming a bottom to the sac, or present but not sclerotized.

Remarks.-*H. argentinensis* is associated with thorn scrub, *beverlyae* with cerrado; the remainder appear to have ranges roughly corresponding with coastal forest formations of Brazil and are often sympatric with *nobilitatus* group species.

17. *Hadromeropsis* (*Hadromeropsis*) *togatus* (Boheman)

Figs. 13, 159, 160, 184; Map 5

Hadromerus togatus Boheman, 1840:290. Type, female, labelled "Brasilia, Westin" printed on white paper; "Typus" on red rectangle bordered in black (Schoenherr coll., Stockholm).

Hadromerus brachispinosus Boheman, 1840:291. LECTOTYPE, HERE DESIGNATED, male, labelled with small green triangle with no inscription; "Hadr. brachispinosus Chevr. Brasil. Germar" written in black on white (Schoenherr coll., Stockholm). *See* Type Material. NEW SYNONYMY.

Diagnosis.-Moderate to large size. Elytra of female (Fig. 13) covered with a conspicuous anchor-shaped dark mark sharply defined in white; remainder of elytra ochraceous, white, pale olive or moss green, or obscure; with or without green or rosy lustre; declivity with a dark spot on apical umbone. Elytra of male with same anchor pattern evident or confused by random clusters of scales alternating with glabrous spots creating a tessellate appearance. Apex of rostrum and epistoma "normal", i.e., anterior corners of epistoma not produced in a lobe. Glabrous spots of elytra at most weakly convex, never tuberculate. Edge of elytra smooth with no trace of tubercles.

Description.-Male, length 9.5-11.4 mm, width 3.3-4.0 mm. Female, length 11.0-14.2 mm, width 4.0-5.3 mm. Elytra patterned as in Diagnosis and Fig. 13. White or ochraceous scales dense, imbricate around eye, continuing along side of head and side of prothorax to base of elytra from interval 4 over and under humerus and continuing thence into the elytral pattern, these markings vague in male, very sharply defined in female. Elytra of male with glabrous areas often the full width of interval and sometimes confluent; apical umbone not always with glabrous spot. Dorsal surface of male and female head, rostrum, dark central area of pronotum, and elytral anchor mark sparsely clothed with scales which under the microscope appear weakly to strongly iridescent green, faintly cupreous, or non-iridescent.

Rostrum approximately as long as wide, flat or (rarely) feebly concave in male, median line briefly impressed basally; sides parallel or apically divergent; surface sparsely punctate. Setae of head and rostrum slender, as long as 1.5-2 scales, recumbent. Epistoma occupying 0.28-0.37 of anterior edge of rostrum, epistoma very slightly ogival. Prothorax 1.0-1.1x wider than long, sides weakly to moderately rounded between constrictions; apical constriction obsolete dorsally; female especially with vague flattened areas on disc on either side of median line. Pronotum smooth medially or with setiferous arcuate pustules and other low convexities; glabrous setiferous spots sparser on sides because of denser scales, spots pustulate, setae as long as 1-2 scales. Elytra across humeri 1.3x wider than prothorax in male, 1.3-1.4x wider in female. Elytra averaging 3.0x longer than prothorax in male, 3.3-3.6x longer in female. Elytra in dorsal view with sides parallel for basal 0.16, thence gradually divergent to beyond middle where they average 1.1x wider than across humeri in both sexes, gradually rounded to apical umbone which enters dorsal outline; apex usually broadly rounded in male, interval 10 at apex slightly thickened and often briefly horizontally flared posteriorly; apex of female and some males slightly elongated triangular. Female apex of each sutural interval thickened in a vertical lobe; apical modification densely pilose in both sexes. Setae of elytra fine, straight; recumbent, semi-erect or perpendicular; recumbent setae as long as 1 scale, semi-erect and erect setae up to 2 scale lengths (posture and length of setae possibly artifacts of abrasion); setae longer on base, sides and declivity; female on sutural interval at summit of declivity with a cluster of up to 12 very long setae. Legs, metasternum, and abdomen with many fine, long setae in male; in female setae much sparser, shorter, curved. Fore femur 1.7-2.0x as wide as hind femur in male, 1.6x in female; faintly pustulate and sometimes rugulose distally. Fore tibia bowed distally; distal tooth averaging 0.5x as long as apex of fore tibia; apex posteriorly with edge expanded into a lobe the size of the outer dorsal lobe; posterior surface with numerous granules or small acute tubercles near teeth of inner edge, granules most numerous in well-developed males, sometimes absent in female. Male ventrite 5 across base 1.6-1.8x wider than long; almost flat; almost evenly squamose; with moderate, sparse punctures; apex narrowly emarginate. Female caudal surface of ventrites 2, 3, and 4 equal, perpendicular, margin evenly arcuate; perpendicular surface of ventrite 2 vertically striate. Female ventrite 5 across base 1.7-1.9x wider than long, almost flat, scales sparser or absent medially. Aedeagus as in Fig. 160. Internal sac as in Fig. 159, differing from similar species in the pair of small fused sclerites at extreme apex ventrally. Spermatheca as in Fig. 184.

Type Material.-PARALECTOTYPES of Hadromerus brachispinosus Boheman, HERE DESIGNATED, 2 males: 1 male, labelled, "Brazil"; orange square with a gritty black texture on top, white underside; "Coll. Chevrol."; "Cotypus" on red rectangle with black border (Schoenherr coll., Stockholm). 1 male, with no labels but listed as "Hadromerus brachispinosis Schönherr (Brasilia)" (Chevrolat coll., Stockholm).

Distribution.-Map 5. BRAZIL. Minas Gerais: Faz. dos Campos. Rio de Janeiro: Nova Friburgo, Rio de Janeiro. Rio Grande do Sul (?).

Santa Catarina: Cauna, Corupá, Mafra, Rio Natal, Rio Vermelho. São Paulo: Pindamonhangaba. PARAGUAY. Alto Paraná: Hohenau.

Specimens were collected in January, February, and September through December.

Specimens examined: 13 males, 35 females. Specimens in Auckland, Cambridge, Curitiba, Dresden, London, New York, Oxford, Paris, São Paulo, Stockholm, Washington, Howden.

Remarks.-From the few specimens available there is an indication that scales with metallic green iridescence in both sexes occur in the northern part of the range only, not in Santa Catarina.

The male labelled "Rio Grande" is very similar to the Rio Vermelho male suggesting that this locality is in the state of Rio Grande do Sul. Both specimens are very fresh with the vestiture in good condition; all elytral setae are erect and nearly perpendicular.

The ventral lobe and granules on the posterior surface of the male fore tibia are developed about half as much as in the extreme *beverlyae*.

One male had an obsolete flange on the fore femur which is an important diagnostic character of *nobilitatus*. The lack of tubercles on the elytra, especially the apical edge, should distinguish *togatus* from *nobilitatus* at a glance.

The anchor-shaped elytral mark is diagnostic and very uniform, the only deviation being one in which the fascia is almost bisected on interval 6 and another in which it is terminated at interval 7.

18. *Hadromeropsis* (*Hadromeropsis*) *argentinensis* (Hustache)

Figs. 7-10, 161, 162, 181, 182; Map 5

Hadromorus [sic] *argentinensis* Hustache, 1928:157; Pl.5, Fig. 2. LECTOTYPE, HERE DESIGNATED, female, labelled "Alta Gracia La Granja, Sierras de Córdoba, C. Bruch leg."; "Foto" printed on green; "Typus" printed on green paper; "Hadromerus argentinensis Hust." printed by hand on white rectangle with fine red border (Bruch coll., Buenos Aires). *See* Type Material.

Diagnosis.-Elytra with a dark, mostly glabrous postmedian spot on intervals 5, 6, and 7. Rostrum with very few rounded scales on side below scrobe, no rounded scales on ventral surface of rostrum. Elytra short and thick (Figs. 7, 8), convex in profile (Figs. 9, 10), apex not or scarcely extended in dorsal view. Elytra without an apical umbone, i.e., intervals 5 and 6 at their apical termination not at all elevated. Ventrite 4 of female with caudal surface perpendicular, straight; ventrite 5 of female glabrous and polished medially. Sexes very similar.

Description.-Male, length 5.3-7.4 mm, width 2.0-3.0 mm. Female, length 6.2-8.6 mm, width 2.6-3.6 mm. Males from Uruguay as short as 4.6 mm, females as short as 6 mm. Integument brown to black. Clothed with white, tan and obscure scales, the latter rarely with green, lavender or cupreous reflections; scales sometimes gray-blue or gray-green in teneral specimens. Side of prothorax with a vitta of dense white or white and tan scales extending from eye to humerus. Ventrally with scales tan, mostly concentrated on sides; ventrites 3, 4, and 5 with very few scales and these only on the extreme lateral edges. Rostrum with dorsal surface more or less flat, dorso-lateral edges not acute, sides broadly visible from above. Surface of head and rostrum with punctures approximately the size of a scale, these often changing to rugae on rostrum. Median line broadly, evenly impressed from between eyes almost to apex of epistoma, frontal fovea obsolete to deep. Epistoma occupying .36-.45 of anterior edge of rostrum; anterior edge of rostrum at margin of epistoma slightly produced. Outer contour of mandible rounded; scar small and elliptical, not protuberant. Ventral surface of head and rostrum usually with no rounded scales. Prothorax averaging 1.1x (1.09-1.2x) wider than long; dorsal and apical constrictions strong, equal; apical constriction obsolete dorsally; in profile, convex to slightly convex. Disc of prothorax sparsely scaled, sparsely punctate, the glabrous areas smooth and polished. Elytra across humeri averaging 1.3x wider than prothorax in male, 1.4x in female. Elytra averaging 2.7x longer than prothorax in male, 3.0x in female. Form of elytra as in Diagnosis and Figs. 7-10. Elytral intervals with random stiff blunt setae, as long as 1-3 scales; those of apical half of elytra in females especially much more nearly perpendicular and longer. Infrequently summit of declivity in female with setae up to 5 scale-lengths. Apices of elytra conjointly rounded in male, in female produced in a weak tooth. Fore femur in male averaging 1.7x, in female 1.6x wider than hind femur; with longitudinal rugae distally. Fore tibia on outer edge covered with scales smaller than those of body, anterior and posterior surfaces indistinctly rugose, with some granules near teeth on inner edge. Distal tooth of fore tibia very small, never exceeding the tuft of setae; female with a pair of distal teeth. Ventrite 5 of male 2.0-2.2x wider than long, weakly convex or not, apex truncate or truncate-emarginate. Ventrite 5 of female as in Diagnosis, 1.8x wider than long, the flat polished surface sometimes depressed below sides; apex broadly rounded. Male genitalia as in Figs. 161, 162. Female genitalia as in Figs. 181, 182 (setae omitted in drawings).

Type Material.-PARALECTOTYPES, HERE DESIGNATED, 1 male, 2 females, labelled "Alta Gracia La Granja, Sierras de Córdoba, C. Bruch leg.," "30." in faded ink on pink square (Hustache Coll., Paris), these 3 specimens mounted on individual cards on a single pin, the pin also bearing a label "TYPE" printed in red on a rectangle; 1 male, 2 females, labelled "Rep. Argentina, Pr. Santiago del Estero, 190_, C. Bruch" (1 male, 1 female, Buenos Aires; 1 female, Paris, also labelled "30." as the 3 paralectotypes from Alta Gracia).

Distribution.-Map 5. South of the Tropic of Capricorn in Argentina, Paraguay, Uruguay and Brazil. ARGENTINA. Buenos Aires: Isla Martin Garcia; San Fernando. Córdoba: Alta Gracia, Anizacate, Capilla del Monte. Entre Ríos: Gualeguaychu, 54 mi E. Paraná, Santa Elena. Jujuy: Juancito. Misionés: Loreto. Salta: 4 km S. Campo Quijano, Cerrillos, Cerro San Bernardo, Las Cañas, Metan, Rosario de Lerma, Viñaco (15 km S. El Carril). Santa Fe: La Gallareta, Tartagal. Santiago del Estero: Averías, 25 km NW Icaño. Tucumán: Chuscha, Ciudacita, Tapia. BRAZIL. Most specimens no other data. Santa Catarina. PARAGUAY. Itapuá Hepua. URUGUAY. Canelones. Colonia: Carmelo, Colonia. Montevideo. Paysando: Puerto PepeAjí. Soriano:

Arroyo Cololó.

Specimens were collected in January through July, but were most common in February and March.

Specimens examined. 215 males, 149 females. Specimens in Auckland, Berlin, Buenos Aires, Cambridge, Curitiba, Dresden, Eberswalde, Ithaca, London, Maracay, New York, Paris, São Paulo, Tucumán, Washington, Howden, Wibmer.

Remarks.-Specimens from Sierras de Córdoba, the type locality, exhibit most of the range of variation noted within the species. The principal geographic variation seems to be the smaller size of specimens from Uruguay and contiguous areas of Argentina (Provinces of Buenos Aires and Entre Ríos and Misionés Ter.). Specimens from Brazil (21) average much larger.

Additional variation is as follows. One specimen had no dark elytral spot but the area was sharply delimited by white scales so that the pattern was still similar. In a male from Salta the dark elytral spot was reduced to interval 5 only. Interval 9 of the elytra may occasionally have some setae set on weak tubercles in males and females. Ventrite 5 of the male had up to 26 scales per side; ventrite 5 in the female usually had no scales but as many as six were seen on one side.

I did not see the specimen mentioned by Hustache (1928:157) from "Alto Paraná, Misiones (Wagner)" with the golden yellow vestiture. It is possibly only a teneral specimen.

Although apparently very distinctive in appearance, small specimens of this species can still be readily mistaken for *atomarius*, and larger specimens can be confused with *plebeius*. From *atomarius*, *argentinensis* may be distinguished by the straight fore tibia; the shorter ventrite 5 of the male; elongate, cylindrical endophallic apex; straight edge of ventrite 4 of female, and glabrous ventrite 5 of female. From *plebeius*, *argentinensis* differs in the absence of round scales on the ventral surface of the rostrum, stout fore femur, rounded exterior outline of mandible, shorter elytra without tubercles and lack of an apical umbone.

According to Bruch (Hayward, 1960:18) the larvae of *H. argentinensis* attack "los espinelles" (*Acacia caven* (Mol.) and *Mimosa scabrella* Benth.). Data on specimens includes *Acacia caven* (in Entre Ríos) and *Prosopis* (in Córdoba). Hustache (1938:6) lists specimens from Loreto, Misionés, on *Mimosa bracatinga*. In the Province of Salta, I took *argentinensis* by beating the foliage of *Acacia macracantha* H.B. ex Willd., *Mimosa farinosa* Grisebach, *Prosopis chilensis* (Mol.) Stuntz, and *Mimosa strigillosa* Torr. and Gr.; occasional specimens were found on tall weeds and one weevil was found buried in the flower of *Mimosa strigillosa*. In Córdoba at Capilla del Monte *argentinensis* were common on *Acacia caven* (Mol.), small trees in a pasture yielding 10 to 15 specimens each.

19. *Hadromeropsis* (*Hadromeropsis*) *plebeius* n. sp.

Figs. 15-17, 147, 164, 186; Map 5

Diagnosis.-Color pattern (Figs. 15-17) similar to that of *argentinensis* in the conspicuous dark spot on intervals 5, 6, and 7. Without a metallic lustre. Elytra with setae of intervals fine, "erect", i.e., at an angle greater than 45° to surface; each seta set on glabrous, flat to tuberculate spot. Apical umbone of elytra with 1 or more glabrous tubercles. Fore femur slender; fore tibia almost straight to weakly bowed, distal tooth very small and concealed by dense setae. Apex of internal sac elongate (Fig. 164), with 2 pairs of basal lobes not present in *argentinensis*.

Description.-Holotype, male, length 9.0 mm, width 3.3 mm. Integument piceous, clothed with white, tan and obscure scales, the white scales usually imbricate, the tan appearing ochraceous in some lights and usually not imbricate. Head, rostrum, thorax, legs and ventral surface clothed with random tan scales. Elytra patterned as follows: with dark spots caused by combination of glabrous areas and obscure scales, (1) on base of intervals 3 and 4, (2) in conspicuous spot on intervals 5, 6, and 7 as in *argentinensis*, connected to suture by zigzag line, and (3) on apical umbone; confused white vitta on basal third of intervals 5 and 6 and white fascia across apical third; center of disc with mixed white and tan; elytra overall with random glabrous spots flat or elevated as in description of elytra below. Rostrum 1.1x longer than wide, almost flat, dorso-lateral edges not acute, the sides not quite vertical. Surface of head with punctures approximately the size of a scale, changing to rugae on rostrum. Median line impressed from frons almost to apex of epistoma. Epistoma occupying approximately 0.3 of anterior edge of rostrum, anterior edge of rostrum at epistoma slightly produced; epistoma 1.3x longer than wide. Scales of side of rostrum rounded, changing to elongate ventrally, on ventral surface of rostrum only a central triangular area without scales. Prothorax 1.1x wider than long, sides moderately rounded between constrictions, apical constriction obsolete dorsally; in profile disc almost flat. Setae of sides of prothorax set on weak pustules. Disc of pronotum slightly irregular, sparsely punctate, surface polished between scales. Elytra as in Diagnosis and Fig. 15. Elytra across humeri 1.4x wider than prothorax. Elytra 2.9x longer than prothorax. Setae of disc of elytra (between striae 7 from basal 0.16 to declivity) arising from flat to slightly convex surface, remainder of setae set on tubercles, those of declivity very small, some no larger than a scale. Setae of elytra straight, most held at an angle greater than 45°; longer than 2 scales. Setae on disc of elytra colored testaceous or darker; setae on extreme base of elytra and intervals 8, 9, and 10 paler or white. Apices of elytra briefly divergent, thickened, densely clothed with fine setae. Edge of elytra around ventrite 5 weakly, minutely tuberculate, appearing crenulate. Fore femur 2.0x wider than hind femur, surface indistinctly sculptured. Fore tibia slightly bowed from distal 0.25, surfaces with moderate, confused sculpture; posteriorly with granules near inner edge, inner edge with about 10 small teeth; distal tooth as small as those along edge, completely concealed in dense fine setae. Central 0.3 of ventrites 3, 4, and 5 without scales. Ventrite 5 across base 2.0x wider than long; weakly convex; apex truncate. Genitalia as in Figs. 164, 165; internal sac with spiculate part of apex especially long.

Allotype, female, length 9.4 mm, width 3.8 mm. Differs from type as follows. White scales of elytra more condensed, forming a basal arc, an oblique fascia from basal third to suture at middle, and a wider apical fascia. Rostrum more robust. Epistoma 1.1x longer than wide. Prothorax 1.2x wider than long, sides more strongly rounded, surface smoother. Elytra 3.3x longer than prothorax. Elytra as in Figs. 16, 17, 147. Apical umbone less prominent; apex more elongate, ending in short, caudally directed tooth. Setae longer, mostly perpendicular; 6 or 7 setae on sutural interval at summit of declivity much longer. Edge of elytra not crenulate. Fore femur 1.5x wider than hind femur. Caudal surface of ventrites 2, 3, and 4 straight, perpendicular; in caudal view slightly arcuate. Surface of ventrites 3 and 4 flat, the caudal elevation beginning abruptly across middle of segment. Scales of ventrites 3, 4, and 5 elongate, limited to extreme sides. Ventrite 5 flat, smooth and polished except at sides; 1.8x wider than long; apex narrowly rounded. Spermatheca as in Fig. 186.

Type Series.-Holotype, BRAZIL, Paraná, O. d'Agua, Rolando, 4-44, 1296, Coleção F. Justus Jor (Curitiba). Allotype, same data as type (Curitiba). Paratypes, 6 males, 14 females. BRAZIL. Paraná: 1 female, 5041, Gregorio Bondar Collection, David Rockefeller Donor (New York); 1 female, Guarauna, 12.40, 1295, Coleção F. Justus Jor (Howden); 1 female, Ortogueira, 1-44, 1295, Coleção F. Justus Jor Curitiba). Santa Catarina: 3 males, 9 females, Nova Teutonia, 300-500 m, 27°11'B, 52°23'L, III.1945, 18.IV.1948, IV.1951, 6.3.1951, II.1966, II.1974, II.1976 [2], III.1977 [2], V.1977, Fritz Plaumann (Auckland, Curitiba, São Paulo, Hespenheide, Howden). São Paulo: 1 male, Staudinger (Dresden); 1 male, 1 female, Cantareira, 13.3.38, Dr. Nick, Coll. Kuschel (Auckland).

Remarks.-Males vary in length from 8.9-9.1 mm and in width from 3.3-3.5 mm. Females vary in length from 7.7-10.7 mm and in width from 3.1-4.5 mm. Minimum color pattern includes the dark somewhat cordiform scutellar area, the postmedian spot on intervals 5, 6, and 7, a dark spot on apical third of interval 2, and at least one glabrous tubercle on apical umbone. The pattern can appear quite different if the postmedian mark is continuous and forms a broad common fascia as in *fasciatus*. Some pastel blue-green scales are found on two male paratypes on the abdomen where they are randomly interspersed with tan scales, and they are also found on two female paratypes where they replace a few or most of the white scales of the elytra. Ventrally in both sexes scales are limited to the sides of the abdomen except ventrite 2 which may be squamose across entire caudal edge; in the type, however, there is a single scale in the center of ventrite 5. The apex of the rostrum of the female may be produced at the outer edges and at the corners of the epistoma almost as much as in *fasciatus*, but pterygia have not developed. The prothorax of male paratypes is narrower, 1.05-1.09x wider than long. In four males the apices of the elytra are prolonged into a short tooth. Ventrite 5 of females ranges from 1.7-2.0x wider than long, but in most females is 1.8x.

Both *fasciatus* and *nobilitatus* have setiferous tubercles on the elytra as in *plebeius*; *plebeius* can be quickly distinguished from both by the lack of a metallic lustre and short distal tibial tooth as well as the other diagnostic characters.

Because it lacks the golden lustre of *nobilitatus* and the red lustre of female fasciatus, this species is called "plebeius," meaning plebeian.

20. Hadromeropsis (Hadromeropsis) pulverulentus n. sp.

Figs. 12, 148-150, 163, 183; Map 6

Diagnosis.-Small; male, length 5.0-6.3 mm, female 6.4-8.0 mm. rostrum (Fig. 149) as wide as long. Epistoma wider than long. Elytra without tubercles; strial punctures usually foveate (Fig. 150); apex of elytra rounded in male, attenuate in female (Fig. 148); setae of edge of apical half of elytra, declivity, and lateral intervals very long and conspicuous. Aedeagus (Fig. 163) almost evenly cylindrical.

Description.-Holotype, male, length 6.3 mm, width 2.2 mm. Integument red-brown, metasternum and ventrites 1 and 2 almost black, ventrites 3 and 4 paler than 1 and 2, ventrite 5 paler than elytra. Without metallic lustre. Sparsely clothed with white and pale tan scales arranged in a faint pattern of (1) a white vitta along base of interval 4 joined across suture in an arc at basal fourth, and (2) a small dark diamond on suture at summit of declivity forming a "V" with a pair of dark spots on intervals 4 and 5 at middle. Scales denser around eye, on side of head, and side of prothorax to humerus. Rostrum as in Diagnosis and Fig. 149, dorso-lateral edges parallel, dorsal surface slightly concave; median line sharply impressed from between caudal edge of eyes to interantennal line, thence shallowly concave to apex of epistoma. Epistoma 1.6x wider than long, occupying 0.47 of anterior edge of rostrum, sides of epistoma slightly arcuate, anterior corners not produced. Sculpture of head and rostrum similar to that of nobilitatus. Prothorax 1.04x wider than long, sides moderately rounded between equal basal and apical constrictions. Each seta of disc set in a puncture, those of sides of prothorax set on a weak granule. Scutellum with several fine appressed setae, no scales. Elytra as in Diagnosis; elytra across humeri 1.3x wider than prothorax. Elytra 2.7x longer than prothorax. Elytra with sides subparallel, very slightly wider (1.09x) at middle, apical umbone very weak, apex rounded beyond umbone. Strial punctures foveate, larger than in Fig. 150 of allotype, gradually becoming smaller on declivity; on disc foveae separated by approximately their own diameter both longitudinally and transversely. Setae of disc very fine and inconspicuous; setae suddenly longer on sides and declivity from apical 0.25, longest setae (on interval 10 apically) as long as 3 scales; only those setae caudad of apical umbone and on edge of elytra around ventrite 5 straight, erect and conspicuous; sutural interval on declivity with evenly spaced, curved setae as long as 2 scales. Fore femur 1.4x wider than hind femur, without distal flange, without sculpture except for a few rugulae distally. Fore tibia almost straight, teeth of inner edge minute, distal tooth as long as 0.32x the width of tibia at apex. Ventrites 3, 4, and 5 without scales medially; ventrite 5 across base 2.1x wider than long, moderately convex, its apex broadly truncate, emarginate. Aedeagus as in Diagnosis, Fig. 163; internal sac not extracted.

Allotype, female, length 6.1 mm, width 2.3 mm. Differs from type as follows. Elytral pattern much more distinct (Fig. 12), the basal vittae enclosing a dark postscutellar spot and the apical "V" very broad and conspicuous. Rostrum less concave. Epistoma 1.3x wider than long, occupying 0.45 of anterior edge of rostrum. Prothorax 1.05x wider than long. Elytra across humeri 1.3x wider than prothorax. Elytra 3.3x longer than prothorax. Sides of elytra gently rounded at middle where they are only 1.2x wider than across humeri, apical umbone weak, apex elongate; sutural interval attenuated into a long tooth directed slightly inward and ventrad (Fig. 148). Lateral edge of elytra somewhat constricted from ventrite 3 to apex; ventrites 3, 4, and 5 consequently narrow. Strial foveae smaller (Fig. 150). Elytral setae longer and more erect, the longest as long as 4 scales; setae of apical half of lateral intervals almost perpendicular to surface and creating a bristly effect; only 2 setae on sutural interval on declivity greatly elongate. Fore femur 1.5x wider than hind femur. Teeth of inner edge of fore tibia and distal tooth short, as long as 0.24 of width of fore tibia. Caudal surface of ventrite 4 perpendicular, its edge evenly arcuate in caudal view. Ventrite 5 across base 1.6x wider than long, triangular, apex narrowly rounded; surface almost flat, medially polished and with only a few minute setae. Genitalia as in Fig. 183 but sclerotized streaks of vagina and setae not shown.

Type Series.-Holotype, BRAZIL, Minas Gerais, Ouro Preto, Topázios, 22.II.1962, J. Bechyné col. (São Paulo). Allotype, same data as type (Howden). Paratypes, 2 males, 6 females. BRAZIL. 1 female, no other data, ex coll. Oberthur (Paris). Minas Gerais: 1 male, 1 female, Bowring 63-47, longulus (Jek.) (London); 1 female, Coll. Kuschel (Auckland). LOCALITY UNKNOWN. 1 female, Gorham Collection, acc. 68498, lentus, Jekel collection (Washington); 1 female, Bowring 63-47 (London); 1 female, Sharp Coll 1905-313, Hadromerus pulverulentus Jek n. sp. , Columbia* (London); 1 male, 1279, Bowring 63-47, pulverulentus (Jek), Bogota* (London).

*In view of the accurate data on the Minas Gerais specimens, the "Columbia" and "Bogota" on these old specimens need to be substantiated.

Remarks.-The two male paratypes are 5.0 and 6.3 mm long, 2.0 and 2.3 mm wide. Females are 6.4-8.0 mm long, 2.5-3.2 mm wide. In most paratypes the color pattern on the elytra is much less developed than in the type and allotype. In a teneral female the white scales on the sides of the prothorax are slightly opalescent. In one of the two males, the rostrum is almost flat. The elytral setae in several females are much more conspicuous, longer and more erect; on the sutural interval on the declivity, 0 to 3 setae may be greatly elongated. The strial punctures are not foveate in the largest female paratype; it is possible that the size of these punctures varies in inverse proportion to the size of the specimen. In females the perpendicular portion of the caudal surface of ventrite 4 varies from the full width of the ventrite as in the allotype to only the central 0.6, and the angle varies from perpendicular as in the allotype to slightly posteriorly projecting. The internal sac was not extracted from any of the males.

H. pulverulentus may always be distinguished by the wide epistoma and almost evenly cylindrical aedeagus. The elongate habitus, small size and bristly lateral setae will also separate the species but these characteristics are more subjective and vulnerable to wear and poor condition of specimens.

Note that the glabrous elytral spot when present is on intervals 4 and 5 or 4, 5, and 6 compared to a more lateral position in plebeius and argentinensis.

For this species, I chose the Jekel manuscript name "pulverulentus" meaning "dusty" since it describes nicely the appearance caused by the pale scales scattered over the surface.

21. Hadromeropsis (Hadromeropsis) pallidus n. sp.

Figs. 20, 21, 151, 166, 167, 187; Map 6

Diagnosis.-Densely clothed with tan or grayish and white scales, elytra with a white pattern as in Figs. 20, 21; or with a vittate pattern formed of medial and apical fasciae abbreviated and connected to basal mark. Head and rostrum robust (Fig. 151); dorso-lateral edges of rostrum ill-defined, broadly rounded, especially basally. Setae of dorsum of elytra white, parallel-sided, truncate at apex, erect, scarcely curved. Female ventrite 5 weakly convex medially with setae and sometimes scales medially. Male ventrite 5 evenly punctate. Aedeagus short, in profile thick distally (Fig. 166); internal sac as in Fig. 167 or with internal sclerite reduced.

Description.-Holotype, male, length 6.8 mm, width 2.5 mm. Integument piceous. Scales tan and off-white, the latter often with weak metallic green lustre. Most tan scales very evenly spaced, not quite touching; tan scales sparser along median line of prothorax, the glabrous area thus forming a dark vitta. Elytra with dark vitta on interval 3 basally and a small, dark "V" on intervals 1-3 before declivity; these dark areas formed by tan scales sparser and some scales replaced with obscure scales. Whitish scales often imbricate; whitish pattern of ring around eye continuous with lateral vitta on prothorax and elytra to apical umbone; disc of elytra with vittate pattern as in Diagnosis. Elytral intervals with 7-10 random glabrous areas the size of 1-2 scales, each as convex as a scale, each bearing an erect seta. Rostrum as in Diagnosis and Fig. 151, approximately as long as wide; median line impressed from between eyes to interantennal line; each longitudinal half of dorsal surface of rostrum longitudinally convex to median line. Epistoma approximately as wide as long, 0.3x as wide as anterior edge of rostrum. Scar of mandibular cusp slightly produced. Surface of head and rostrum with prostrate setae as long as 1.5-2 scales, arising from minute punctures in small glabrous spaces between scales, surface otherwise not sculptured. Prothorax almost as long as wide, sides weakly rounded between weak apical and basal constrictions; surface without evident sculpture. In profile pronotum almost flat, basal constriction narrow, anterior edge produced more than is usual in the genus. All setae of prothorax prostrate, on disc as long as 1-1.5 scales, on sides as long as 2 scales. Scutellum with 1 seta-like scale, and several minute, prostrate setae. Elytra across humeri 1.3x wider than prothorax. Elytra 2.8x longer than prothorax. Elytra in dorsal view with sides parallel for basal 0.2, thence very slightly, gradually arcuate, widest at middle, apical umbone weak but distinct in outline, apex beyond broadly rounded; apices unmodified. In profile summit of declivity unmarked. Strial punctures fine, inconspicuous. Intervals as wide as 4-5 scales, sutural interval narrower. Setae of elytra as in Diagnosis, as long as 3-4 scales. Fore femur 1.5x wider than hind femur, apparently without microsculpture. Fore tibia straight to distal 0.2 thence very weakly bowed; inner edge with 8 small teeth; distal tooth as long as 0.25 width of tibia at apex. Abdomen with scales almost evenly distributed on ventrites 1 and 2, absent medially on ventrites 3 and 4, slightly sparser medially on ventrite 5. Ventrite 5 across base 2.0x wider than long, moderately convex, its apex briefly emarginate, surface evenly punctate. Aedeagus as in Diagnosis, Fig. 166. Internal sac similar to Fig. 167 but internal sclerite greatly reduced to approximately one-third; spiculate apex of sac shorter.

Allotype, female, length 6.5 mm, width 2.8 mm. Differs from type as follows. Rostrum flatter, epistoma 1.2x longer than wide. Prothorax 1.2x wider than long. Elytra 3.0x longer than prothorax. Elytra similar to Figs. 20, 21, but humeri less prominent and sutural tooth much shorter. Fore femur 1.2x wider than hind femur. Fore tibia with distal tooth single, as holotype. Ventrites 1 and 2 almost evenly squamose, ventrites 3 and 4 medially with no round scales but with appressed setae or seta-like scales. Caudal surface of ventrite 4 perpendicular; slightly, evenly arcuate from extreme sides. Ventrite 5 across base 1.5x wider than long, scales absent on weakly convex median area. Spermatheca resembling that of pulverulentus in Fig. 183; spermathecal duct 1.2 mm long.

Type Series.-Holotype, ARGENTINA, Misionés, Oberá, 10.5.47, Wittmer leg., Kuschel Coll. (Auckland). Allotype, same data as type (Auckland). Paratypes, 4 males, 1 female. ARGENTINA. Misionés: 1 male (Buenos Aires). BRAZIL. Minas Gerais: 1 male, Vila Monte Verde, 8.III.1972, J. Halik, 12383 (Sao Paulo). PARAGUAY. Alto Paraná: 2 males, Hohenau, 12.1939, Hans Jacob leg. (Auckland, Howden). URUGUAY. Montevideo: 1 female, So Amer Paras Lab, No. 298, 6-1-43, Berry (Washington).

Remarks.-Males vary in length from 5.8-7.5 mm and in width from 2.2-2.7 mm. The female paratype is 10.0 mm long, 4.1 mm wide. The specimens from Brazil and Uruguay have the elytra patterned as in Figs. 20, 21; those from Argentina and Paraguay have the vittate pattern. The male from Minas Gerais differs from the other males as follows: integument black but appendages paler, elytra flatter, intervals as wide as 5-7 scales, setae of elytra shorter, apices of elytra developed into a pair of divergent teeth or conical tubercles, internal sac as in Fig. 167.

The internal sac in the four males dissected exhibits more than the usual amount of variation. In one male from Paraguay the internal sclerites are approximately midway between the small extreme of the type from Misiones and the large extreme of the paratype from Minas Gerais (Fig. 167). In the same male from Paraguay there is a slight sclerotization of the ventral surface of the apex reminiscent of speculifer.

It could be debated whether the blunt apex of the elytral setae is natural or a consequence of a filamentous tip breaking off. I feel it is natural because all setae on the disc of the elytra are blunt but the setae on the apical edges of the elytra are gradually tapered. This holds true for teneral as well as older specimens. Likewise the setae of the thorax, head and rostrum are almost as blunt, but their apices are protected by their prostrate position.

In addition to the diagnostic characters given, the profile of the elytra is distinctive in the unmarked summit of the declivity.

The name pallidus refers to the pale color of the specimens.

22. Hadromeropsis (Hadromeropsis) speculifer n. sp.

Figs. 11, 140, 143, 168, 169, 185; Map 7

Diagnosis.-Usually with a greenish or rosy metallic lustre. Elytra immaculate or with a maximum pattern of elongate basal ring between striae 1 and 5, an acute V-shaped fascia beginning at middle and a similar postmedian fascia parallel to it, the latter two fasciae sometimes joined laterally (Fig. 11). Elytra without tubercles or pustules. Female with lateral edges of elytra strongly constricted opposite ventrites 3, 4, and 5; in ventral view (Fig. 143) sides of elytra broadly visible. Female ventrite 4 with caudal surface perpendicular, edge straight or appearing feebly emarginate. Female ventrite 5 flat, medially mirror-like, highly polished, smooth, without scales, with several short setae at most; laterally ventrite 5 with numerous setae, with or without scales. Aedeagus slightly thicker distally; internal sac as in Fig. 168.

Description.-Holotype, male, length 6.1 mm, width 2.1 mm. Integument black. Rather densely covered with scales which are mostly contiguous on dorsal surface, the random bare areas causing a slightly tessellate appearance. Scales of side of rostrum little different from those of dorsum, continuing onto ventral surface of rostrum, absent on only central 0.4. Prothorax subvittate: scales sparser and smaller along median line, condensed on either side of median line and on sides. Scales on elytra leaving random naturally glabrous areas approximately the size of a scale on base of elytra, becoming width of interval by middle of elytra. Scales pale, opalescent, with strong lavender and rosy metallic lustre. Rostrum flat, 1.1x longer than wide; dorso-lateral edges well defined but not acute, slightly inwardly arcuate; median line sharply impressed from between eyes to interantennal line. Epistoma as wide as long, occupying .37 of anterior edge of rostrum. Head and rostrum very sparsely, finely setate-punctate. Prothorax 1.07x wider than long, sides weakly rounded between equal basal and apical constrictions; in profile prothorax almost flat. Bare spots of prothorax approximately as convex as adjacent scales, setae arising from these very inconspicuous, prostrate, shorter than an adjacent scale on disc; setae of sides only slightly longer. Scutellum with 9 seta-like scales. Elytra across humeri 1.2x wider than prothorax. Elytra 2.6x longer than prothorax. Elytra 2.3x longer than width across humeri. Elytra in dorsal view with sides subparallel, very slightly wider across middle, apical umbone weak, just entering dorsal outline, apex beyond broadly rounded; apices very briefly divergent, ending in a blunt tooth. Strial punctures fine, elongate, except larger on intervals 5 and 6 basally. Intervals basally as wide as 2-3 scales, rapidly becoming as wide as 3-4 scales. Setae of basal half of elytra very inconspicuous, as long as one scale; laterally and apically changing to arched, then straight, becoming as long as 4 scales on edge of elytra around ventrite 5. Fore femur 1.8x wider than hind femur; sculpture obsolete. Fore tibia (Fig. 140) straight except distal 0.23 slightly bowed inwards; inner edge with 7 small denticles; distal tooth small, as long as 0.3x width of apex. Metasternum 1.15x longer than ventrite 1. Ventrites 3, 4, and 5 with dense patch of scales on extreme side, scales absent medially; entire abdomen sparsely, evenly clothed with fine setae as long as those of apical edge of elytra. Ventrite 5 across base 1.8x wider than long; medially impunctate, without scales, with very few setae; apex truncate. Aedeagus and internal sac of paratypes (type not dissected) as in Figs. 168, 169. Aedeagal apodeme very short, 0.2-0.36x as long as aedeagus.

Allotype, female, length 8.1 mm, width 3.2 mm. Differs from type as follows. Scales distinctly tan and white with rosy and green lustre; elytra with maximum pattern as described in Diagnosis. Rostrum approximately as wide as long. Prothorax 1.02x wider than long. Scutellum with 3 normal scales in addition to seta-like scales. Elytra as in Diagnosis, Figs. 11, 143. Elytra across humeri 1.4x wider than prothorax. Elytra 3.1x longer than prothorax. Elytra 2.2x longer than width across humeri. Elytra in dorsal view with sides gradually divergent to middle where they are 1.3x wider than across humeri, thence rounded to interval 3, apex elongate, sutural interval elongated into a short tooth; at apex interval 10 and edge of elytra expanded before sutural tooth. Intervals much wider, from middle all intervals except sutural interval as wide as 6 scales. Setae around apical edge of elytra as long as up to 6 scales; sutural interval on declivity with 3 long, stiff setae. Fore femur 1.3x wider than hind femur. Apex of fore tibia with 2 very small teeth concealed in the setae. Ventrite 1, 1.2x longer than metasternum. Abdomen as in Diagnosis and Fig. 143. Ventrite 5 across base 1.6x wider than long. Spermatheca as in Fig. 185.

Type Series.-Holotype, BRAZIL, São Paulo, Campos Jordão, 11.IV.1962, E. Halik 2510 (São Paulo). Allotype, same data as type but 12.IV.1962, 19921, Brazil Halik 1966 Collection (Washington). Paratypes, 17 males, 14 females. BRAZIL. Minas Gerais: 1 male, 2 females, Serra do Caraça, III.1963, F. Werner, U. Martins, L. Silva (São Paulo); 1 female, Serra do Caraça, 24.II-3.III.1972, Exp. MZUSP (São Paulo); 5 males, 6 females, Vila Monte Verde, 16.IV.1960, 17_.196 [2], 18._.196_ [2], _I.1961, 28.II.1964 [2], 9.II.1965 [2], 15.III.1966, 17.III.1966, J. Halik (São Paulo, Washington, Howden). Santa Catarina: 1 male, Rio Vermelho, III.1947, A. Maller Coll., Frank Johnson Donor (New York). São Paulo: 9 males, 3 females, Campos Jordão, 11.IV.1962 [6], 12.IV.1962 [6], J. Halik (São Paulo, Washington, Howden); 1 male, 2 females, Campos Jordão, 12.2.52, Wittmer leg., Coll. Kuschel (Auckland).

Remarks.-Males vary in length from 5.1-7.3 mm and in width from 2.0-2.7 mm. Females vary in length from 6.3-8.5 mm and in width from

2.4-3.3 mm. The apex of the elytra is rounded and without a tooth in half the males. In males the metasternum is 1.09-1.2x longer than ventrite 1; in females ventrite 1 is 1.0-1.2x longer than the metasternum. Ventrite 5 of females sometimes has a few scales at the extreme lateral edges. Ventrite 5 of males has a few scales medially in half the specimens, none in the others; at most it is sparsely, minutely punctulate.

The internal parts of most of the type series were hard and did not respond to softening techniques (*see* Methods). The male genitalia shown (Figs. 168, 169) are from a specimen from Rio Natal, Santa Catarina. The genitalia of the single dissectable male from the type locality are apparently identical to that in the figures.

Hadromeropsis from the state of Santa Catarina which agree with the diagnostic characters of *speculifer* as listed here are consistently different from those from the states of São Paulo and Minas Gerais, an exception being one of two males from Rio Vermelho. Compared to typical specimens, these Santa Catarina specimens differ as follows. Size larger: males, length 7.3-7.7 mm, width 2.5-2.8 mm; females, length 7.8-9.0 mm, width 2.8-3.5 mm. Very densely squamose, glabrous spots smaller, prothorax only obsoletely subvittate, median line of rostrum completely or almost concealed by scales. Sometimes (both males, 1 female) immaculate; metallic lustre weaker. Rostrum 1.3x longer than wide in male, 1.2-1.4x in female, dorso-lateral edges converging apically. Prothorax as wide as long in male, 1.2x wider than long in female. Elytra across humeri 1.3-1.4x wider than prothorax in male, 1.4-1.5x wider in female. Elytra 2.9x longer than prothorax in male, 3.1-3.3x wider in female. Intervals as wide as 8 scales. Elytral setae more conspicuous in profile. Fore femur of female 1.6x wider than hind femur. Male metasternum 1.4x longer than ventrite 1; female ventrite 1, 1.03-1.14 longer than metasternum. Male ventrite 5 evenly, sparsely squamose and punctate.

The Santa Catarina specimens are labelled as follows: 3 females, no additional data, A. Maller, Gregorio Bondar Collection, David Rockefeller Donor (New York); 2 females, Cauna, III.1945, A. Maller Coll., Frank Johnson Donor (New York); 1 male, Joinville, 49.0W, 26.0S sea-level, Aug. 1926, Antonio Maller, B.M. 1931-106 (London); 1 female, Mafra, Mall. (Paris); 1 female, Mafra, 800m, 12.65 (Curitiba); 1 male, Rio Natal, II.1945, A. Maller Coll., Frank Johnson Donor (New York); 1 male, 1 female, Rio Vermelho, XII.1946, III.1947, A. Maller, Frank Johnson Donor (New York).

Field study is needed to determine if these Santa Catarina specimens represent extreme geographic variation or a sibling species.

Females of *speculifer* are especially recognizable by the strongly contracted sides of the elytra around ventrites 3, 4, and 5 and by the flat, mirror-like ventrite 5. Both sexes can be separated from other species within its range as follows: from *atomarius* by the straight fore tibia and absence of elytral tubercles; from *pulverulentus* by the narrower epistoma (no wider than long) and finely punctured striae; from *plebeius* by the lack of elytral tubercles, smaller size, and very different color pattern; from *pallidus* by the well-defined dorso-lateral edges of the rostrum.

The mirror-like surface of ventrite 5 in the female inspired the name *speculifer* meaning "with a mirror".

23. Hadromeropsis (Hadromeropsis) beverlyae n. sp.

Figs. 22-25, 152, 154, 156, 170, 171, 188-190; Map 6

Diagnosis.-Densely clothed dorsally with green scales, ventrally and laterally with cupreous or golden scales. Anterior edge of rostrum at margin of epistoma flared upwards and outwards (Fig. 156). Both sexes with the glabrous spots of the basal half of elytral interval 9 tuberculate, in dorsal view their profile more prominent than the tubercles of the sides of the prothorax. Fore femur of male with very small, shiny tubercles or granules along entire inner surface including the arcuate distal flange of inner edge (Fig. 152). Apical end of fore tibia in both sexes produced in a rounded lobe on posterior edge, the lobe at least as long as the distal tooth (Fig. 154); apical end of fore tibia of opalinus (Fig. 153) shows usual condition in other species.

Description.-Holotype, male, length 7.9 mm, width 3.3 mm. Dorsal surface of rostrum, head, prothorax, elytra, and fore femur densely clothed with green scales which exhibit a golden lustre in certain lights; remainder of body including elytral intervals 8, 9, and 10 with cupreous scales with golden lustre. Scales of basal half of elytral intervals 4 and 7 slightly more dense giving a subvittate appearance. Prothorax and elytra with random, small, glabrous spots approximately the size of a scale; the single minute seta of each glabrous spot on dorsal surface recumbent, very inconspicuous; glabrous spots of side of prothorax and basal half of elytral interval 9 tuberculate, in dorsal view those of interval 9 more prominent in profile than those of sides of prothorax. Rostrum 1.2x longer than wide, dorsal surface approximately parallel-sided, feebly depressed medially, median line impressed between anterior half of eyes. Epistoma occupying approximately 0.5x of anterior edge of rostrum, strongly concave, its apex rounded; epistoma as wide as long; sides of epistoma from about middle becoming carinate then keeled and flared outward and upward (Fig. 156). Mandibular scar scarcely exceeding outline of mandible. Prothorax 1.2x wider than long; sides strongly rounded; basal and apical constrictions equal; apical constriction weak dorsally. Basal constriction with a few white, curved setae from ventral surface evident in dorsal view. Elytra (Fig. 22) across humeri 1.2x wider than prothorax; elytra 2.8x longer than prothorax; sides very slightly divergent to middle, thence very gradually convergent to apex, apical umbone very weak, sutural interval briefly attenuate to form tooth. In profile (Fig. 23) summit of declivity unmarked, elytra gradually deflected from about middle to apex, all glabrous spots of declivity including sutural interval set with short (about as long as 2 scales), straight, obliquely deflected setae. Ventral surface of entire body (except ventrites 3, 4, and 5) and all legs with the long, wispy setae particularly dense. Fore coxa on inner distal edge with trace of tubercle as in gemmifer. Fore femur as in Diagnosis and Fig. 152, 2.6x wider than hind femur, slightly narrower than head between outer edges of eyes, scales absent on inner granular area. Fore tibia as in Diagnosis and Figs. 152, 154; inner edge with cylindrical tubercles, similar smaller tubercles covering much of inner surface. Abdomen with scales sparse on ventrites 2 and

5 medially, absent medially on ventrites 1, 3, and 4. Ventrite 5 across base 2x wider than long, apex broadly truncate, weakly convex. Aedeagus as in Fig. 171; internal sac as in Fig. 170, without basal ventral lobes.

Allotype, female, length 9.3 mm, width 3.7 mm. Differs from type as follows. Rostrum 1.1x longer than wide. Elytra (Figs. 24, 25) across humeri 1.4x wider than across prothorax, sides wider at middle, apex only slightly more attenuate and apical umbone only slightly more prominent. Long, wispy setae of ventral surface replaced by shorter, curved setae. Fore leg with no trace of tubercle on fore coxa; granules of fore femur and flange greatly reduced; tibia with granules reduced; lobe of posterior apical edge of tibia shorter. Ventrites 3 and 4 with no scales on central third, the glabrous surface roughly sculptured; surface flat, rising abruptly to caudal margin. Ventrite 5 flat, 1.9x wider than long; medially glabrous and polished, laterally bordered with short white setae and with a small sublateral patch of elongate scales; apex truncate. Genitalia of paratypes as in Figs. 188-190; vagina with 8 faint, long fins.

Type Series.-Holotype, BRAZIL, Distrito Federal, 20 km N Brasilia, III.10.1970, 1250 m, JM & BA Campbell (São Paulo). Allotype, same data as type (São Paulo). Paratypes, 9 males, 10 females, same data as type (Ottawa, Howden).

Remarks.-Males vary in length from 7.4-9.0 mm, and in width from 2.8-3.4 mm. Females vary in length from 7.4-9.3 mm, and in width from 3.1-3.9 mm. The subvittate appearance is very consistent, as is the character of the glabrous spots: mostly uniserial, larger on basal half of the elytra, becoming smaller apically until smaller than a single scale; females usually more densely squamose. The type series is very uniform except for one aberrant male which has the median line impressed on the disc of the prothorax, the head protuberant, and the basal half of interval 9 of the right elytron only raised, its scales elongate and two of the tubercles bearing moderately long, curved setae. Most specimens do not have even a trace of the coxal tubercle.

The green dorsal surface and cupreous sides and venter must lend this species particularly good color camouflage against green foliage and the reddish soil of its cerrado habitat.

It gives me great pleasure to name this species in honor of Mrs. Beverly Ann Campbell of Ottawa who collected the entire type series.

The nobilitatus Group

24. nobilitatus (Gyllenhal)	26. excubitor n. sp.
25. atomarius (Boheman)	27. fasciatus (Lucas)

Characteristics of Group.-Often with a complex fasciate color pattern on the elytra which is similar in the two sexes or reduced (weaker) in the males of some species; with a strong to weak (according to the species) red or golden lustre in reflected light. Segments 1 and 2 of antennal funicle very long, equal in length. Elytra often with setiferous tubercles. Fore tibia bowed distally; distal tooth of female double in many species. Internal sac of aedeagus ventrally with a heavily sclerotized plate which is free at its distal end (e.g., Fig. 174), this plate absent in fasciatus (Fig.

180).

24. Hadromeropsis (Hadromeropsis) nobilitatus (Gyllenhal)

Figs. 1, 14, 173, 174, 191-194; Map 8

Hadromerus nobilitatus Gyllenhal, in Schoenherr, 1834:128. Type, female, labelled "Brasilia, F....[illegible]" written on white paper; "TYPUS" on red rectangle with black border (Schoenherr Collection, Stockholm).

Hadromeropsis similis Hustache, 1938:6. Type, female, labelled "Republic Argne., Rio Parana, Territoire des Missiones," "Hadromeropsis similis m.," "TYPE" in red ink on white rectangle (Hustache Collection, Paris). Synonymized by Kuschel, 1955:278.

Diagnosis.-Body with a golden or reddish metallic lustre. Elytra (Fig. 1) marked with (a). circumscutellar half circle originating at base of interval 4, (b). oblique fascia from basal third to middle at stria 1 or suture, (c). common "V" with its apex at summit of declivity; these markings creamy white or tan in female, light to dark ochraceous in male; area between markings with scales smaller, lavender or green under microscope, this area obscure macroscopically. Prothorax with sides moderately to strongly rounded. Setiferous tubercles of intervals 8 and 9 conspicuous dorsally. Male: fore femur with distinct flange; distal tooth of fore tibia approximately as long as width of tibia at apex, acute. Female: fore femur with flange obsolete; distal tooth of fore tibia shorter, approximately 0.3-0.5x width of tibia, usually single. Fore tibia both sexes abruptly bowed at distal 0.25; of equal width to apex. Female caudal margin of ventrite 4 usually arcuate medially, projecting posteriorly. Internal sac with sclerite on ventral surface as in Fig. 174. Spermatheca with nodulus and ramus approximately equal in length, much shorter than cornu.

Description.-Male, length 6.8-8.6 mm, width 2.5-3.1 mm. Female, length 7.5-10.7 mm, width 3.0-4.5 mm. Integument medium to dark red brown. Color and elytral pattern as in Diagnosis and Fig. 1. Pale scales (white, tan or ochraceous) very dense, imbricate around eye, somewhat concentrated on sides of prothorax but not forming a vitta there, otherwise body and legs with scattered pale scales. Rostrum 1.2-1.3x longer than wide, flat or weakly concave (especially in male), median line sharply impressed from between middle of eyes to middle of rostrum. Dorso-lateral edges distinct but not acute, slightly convergent caudally. Surface of head and rostrum smooth and shiny between scales; with scattered appressed setae each set in a puncture smaller than a scale. Epistoma as long as wide, occupying approximately 0.3 of anterior edge of rostrum; sides of epistoma feebly ogival, carinate anteriorly, moderately elevated, especially in female; epistoma with an average of 3 setae on each side, usually in a single row. Sides of rostrum with several rows of rounded scales ventrad of scrobe; below this, scales usually replaced by appressed white setae. Prothorax of male 1.0-1.1x wider than long, of female 1.1-1.2x wider than long; surface in both sexes with scattered fine setae, those of disc set on smooth surface, or in a fine puncture, those of sides on smooth surface or weak tubercle. Scutellum with or without 2 or 3 small scales and several fine appressed setae. Elytra across humeri averaging 1.3x wider than prothorax in male, 1.5x in female. Elytra averaging 3.1x longer than prothorax in male, 3.4x in female. Elytra of male (Fig. 1) parallel-sided; apical umbone weak, touching but usually not interrupting dorsal outline; apices briefly divergent, toothed. Elytra of female with sides parallel basally, thence gradually divergent to just behind middle where they average 1.2x wider than across humeri (1.3x in type), then abruptly constricted under apical umbone, apex triangular between fourth striae, ending in a pair of slightly convergent teeth. Edge of elytra around ventrite 5 with minute setiferous tubercles in both sexes. Disc of elytra with random glabrous spots, these as wide as an interval and sometimes contiguous in dark areas, smaller in areas of pale scales, larger spots convex; each spot near its caudal edge with a seta as long as 1-2 scales, setae appressed, weakly curved or straight. Tubercles of intervals 8 and 9 conspicuous in dorsal view creating a serrate outline, similar tubercles also on intervals 5, 6, and 7 across summit of declivity; setae arising from tubercles stouter, white, approximately as long as 2 scales, curved or straight but parallel to surface. Female with sutural interval on declivity with as many as 5 long, stiff setae equal in length to as many as 7 scales. Summit of declivity gradual (Fig. 14). Fore femur as in Diagnosis; in male averaging 2.2x wider than hind femur, in female 1.7x wider. Fore tibia as in Diagnosis. Ventrite 5 of male across base 2.0x wider than long, apex broadly rounded, scales and setae almost evenly distributed. Ventrite 5 of female across base 1.7-2.1x wider than long, apex narrowly rounded; with a few scales concentrated on sides, scales absent or not medially; setae appressed, evenly distributed. Male genitalia as in Diagnosis and Figs. 173, 174. Female with spermatheca as in Diagnosis, Fig. 191; with a bursal sclerite similar to that of *argentinensis* (Fig. 181) and *beverlyae* (Figs. 189, 190).

Distribution.-Map 8. ARGENTINA. Misiónes: Rio Paraná (the type of *similis*). BRAZIL. Espírito Santo: Conceição de Barra, Santa Teresa. Minas Gerais: Matozinhos, Viçosa, Vila Monte Verde. Paraná: Caviuna, Curitiba. Rio de Janeiro: Corcovado, Itatiaya, Petrópolis, Rio de Janeiro. São Paulo: Bosque de Saudo, Cantareira, Interlagos, Jabaquara, Morumbi, Parque de Estado, São Paulo, Sitio Bananal.

Specimens were collected in all months except the winter months of June, July, and August.

Specimens examined: 25 males, 44 females. Specimens in: Auckland, Berlin, Cambridge, Curitiba, Dresden, Eberswalde, Leiden, London, Maracay, New York, Oxford, Paris, São Paulo, Stockholm, Washington, Howden.

Remarks.-The above Description and Diagnosis refer to the type and specimens which are obviously conspecific with it. I have seen a series of 12 females which I will refer to here as "smooth *nobilitatus*." These specimens all differ from typical *nobilitatus* in *having*: the elytra smooth, i.e., the glabrous areas not or scarcely convex and the tubercles of intervals 8 and 9 weaker; caudal margin of ventrite 4 medially acutely pointed and posteriorly directed as in *atomarius*; spermatheca variable, Figs. 192, 193, 194. Instead of the dark preapical elytral fascia, the white scales intrude on the fascia in intervals 1, 2, and 3, and sometimes 4, reducing it to a conspicuous dark lateral spot on intervals 4 or 5 and 6 and 7. The scales are more pastel in color and the reflected lustre is paler. The apical umbone is weak in all. The rostrum is as wide as long to no more than 1.1x longer than wide. These specimens, not included in the description, range from 7.5-9.6 mm in length and 3.0-4.0 mm in width. They occur throughout the range of *nobilitatus*: Minas Gerais: Viçosa (2); Santa Catarina (1); São Paulo: Jundiaí (1), no other data (5); [Argentina] Est. Esp. Loreto (1); no data (1). I have seen males and females of typical *nobilitatus* with data identical to that of smooth *nobilitatus*. The pointed margin of ventrite 4 always occurs in conjunction with the smoother elytra, paler scales and different (although variable) spermatheca. These apparently consistent differences may indicate sibling species or two forms of females of *nobilitatus*.

The relationship of *atomarius* to *nobilitatus* has some of the attributes of a geographical cline. However, although *atomarius* seems to be concentrated in the Serra do Caraça, there is some apparent overlap in the range and without studying the situation in the field, it seems best to leave them as separate species. The differences between *nobilitatus* and *atomarius* which seem to be clinal are as follows: *atomarius* is smaller and has the elytral tubercles reduced, femoral flange less developed or even absent in male, distal tibial tooth of the male smaller, margin of ventrite 4 of female more acute, spermatheca more slender and elongate.

25. *Hadromeropsis* (*Hadromeropsis*) *atomarius* (Boheman)

Figs. 18, 19, 144, 145, 155, 175, 176, 195; Map 8

Hadromerus atomarius Boheman, 1840:292. Type, female, labelled "Typus" on red bordered with black, "H. pygalpis Germ. Brasil Germ" written on white (Schoenherr Collection, Stockholm). *See* Type Material.

Diagnosis.-Similar to *nobilitatus* but smaller. Metallic lustre absent or very faint. Elytral pattern (Figs. 18, 19) similar to that of *nobilitatus* but fainter, all scales white or shades of tan or ochraceous, none obscure, rarely with faint lavender or green reflections. Epistoma as long or longer than wide. Prothorax with sides moderately to weakly rounded. Setiferous tubercles of intervals 8 and 9 weak in dorsal view. Fore tibia of male (Fig. 144) with distal tooth 0.5 or less the width of tibia at apex; fore tibia of female (Fig. 145) with two equal teeth or distal tooth slightly longer than the second. Female ventrite 4 (Fig. 155) with caudal margin pointed medially and slightly posteriorly directed. Male apex of ventrite 5 slightly emarginate to truncate. Aedeagus in profile much thicker apically than basally (Fig. 175).

Description.-Male, length 5.5-8.0 mm, width 2.0-3.0 mm. Female, length 7.1-9.4 mm, width 2.9-3.8 mm. Integument red-brown; ventrally piceous except ventrites 4 and 5 lighter. Color of scales and pattern as in Diagnosis and Figs. 18, 19; scales almost evenly distributed except for glabrous spots which are usually larger on basal portion of elytra, usually 9-12 per interval. Rostrum and head similar to that of nobilitatus in sculpture, median line and vestiture; rostrum 1.1-1.3x longer than wide in male, 1.0-1.1x longer than wide in female. Epistoma as in Diagnosis, occupying 0.4 of anterior edge of rostrum, triangular, anterior corners scarcely elevated. Prothorax as in Diagnosis, male 1.0-1.1x wider than long, female 1.1-1.2x wider than long, almost uniformly squamose, sculpture as in nobilitatus. Scutellum with 0-8 scales. Elytra across humeri averaging 1.3x wider than prothorax in male, 1.4x wider in female. Elytra averaging 3.0x longer than prothorax in male, 3.5x longer in female. Elytra of male with sides subparallel, sides slightly constricted beneath weak apical umbone, apical edge of elytra very briefly indented immediately before suture thus forming a short tooth. Elytra of female (Fig. 18) widest at middle where they are 1.2x wider than across humeri, constricted under weak apical umbone, apex ending in a pair of slightly convergent teeth. Edge of elytra around ventrite 5 at most obsoletely tuberculate. Each glabrous spot on disc with single appressed seta as long as 1 scale in male, longer in female; towards declivity and sides setae longer, stouter, straight or slightly curved, less appressed, sometimes standing well away from surface creating a shaggy effect. Tubercles of intervals 8 and 9 weak to obsolete. Female with sutural interval on declivity with an average of 5 long, stiff setae. Fore femur without distal flange; fore femur of male 1.6-1.9x wider than hind femur; of female 1.4-1.5x wider than hind femur. Fore tibia (Fig. 144, male) bowed as in nobilitatus or less so; distal teeth as in Diagnosis, Figs. 144, 145. Female ventrite 4 with caudal margin as in Diagnosis, Fig. 155; male also often with a weak median point. Ventrite 5 of male 1.4-2.0x wider than long; scales almost evenly distributed over surface, apex as in Diagnosis. Ventrite 5 of female 1.8-2.0x wider than long; scales evenly distributed or sparser medially, apex rounded. Aedeagus as in Fig. 175, internal sac as in Fig. 176; spermatheca as in Fig. 195.

Type Material.-The remainder of the type series consists of: (1) a male and a female in the Chevrolat Collection (Stockholm) labelled "Hadromerus atomarius irroratus Klug, Brasilia," the female also labelled "Minas Gerais" and the male "Paratypus," and (2) Var. beta Boheman, 1840:292, a female, labelled "Typus" on red with black border, "Brasil mer, Schupp" written on white in the Schoenherr Collection (Stockholm). This latter specimen is teneral and has the caudal margin of ventrite 4 somewhat less pointed than in the type but is conspecific.

Distribution.-Map 8. BRAZIL: Minas Gerais: Matozinhos, Serra do Caraça, Topázios (Ouro Preto).

Specimens were collected in January, February, and March.

Specimens examined: 10 males, 22 females. Specimens in Auckland, Basel, Berlin, Cambridge, Dresden, Leiden, London, Paris, São Paulo, Stockholm, Howden.

Remarks.-Boheman's statement that the body is black below would seem to refer to speculifer, but I have no doubt that I saw the genuine type series of atomarius.

The distally thickened aedeagus separates atomarius from both nobilitatus and pulverulentus. In addition to the characters in the

Diagnosis, *atomarius* differs from *pulverulentus* in the shorter setae of the sides of the elytra and from *speculifer* in the thicker fore femur.

Labels on museum specimens suggest the range of *atomarius* apparently is concentrated in the Serra do Caraça where it is sympatric with *nobilitatus* and *pulverulentus*, but field study is needed to establish this. One female *atomarius* bears an identical label to the type of *pulverulentus*.

See discussion of *nobilitatus* for further comments on the relationship of *nobilitatus* and *atomarius*.

26. *Hadromeropsis* (*Hadromeropsis*) *excubitor* n. sp.

Figs. 141, 142, 177, 178, 196-198; Map 7

Diagnosis.-Similar to *nobilitatus* but more robust. Edge of elytra around ventrite 5 smooth or with minute crenulations no more prominent than the height of a convex scale. Apex of sutural interval of male not attenuated into a tooth. Fore tibia of male (Fig. 141) with distal tooth 0.5x or less the width of tibia; fore tibia of female (Fig. 142) with a pair of distal teeth, the most distal tooth shorter or equal to the second. Internal sac as in Fig. 178. Spermatheca (Figs. 196-198) with nodulus much longer than ramus.

Description.-Holotype, male, length 10.2 mm, width 3.7 mm. Integument red-brown. Scales arranged and elytra patterned as in *nobilitatus* (Fig. 1), but markings ochraceous to copper, scales between markings smaller, with green iridescence or opalescence under microscope; declivity also solid ochraceous; with reddish lustre in glancing light. Rostrum 1.3x longer than wide. Dorso-lateral edges of rostrum subparallel, sides of rostrum broadly visible from above; median line vaguely impressed basally; dorsum concave; sculpture and vestiture as in *nobilitatus*. Epistoma occupying 0.35 of anterior edge of rostrum, as in *nobilitatus* but with 5-7 setae on each side. Prothorax 1.1x wider than long, sides moderately rounded; sculpture and vestiture as in *nobilitatus*. Scutellum with 6 small scales and appressed setae. Elytra across humeri 1.4x wider than prothorax. Elytra 3.0x longer than prothorax. Sides of elytra parallel to apical third thence broadly rounded, apical umbone weak but evident in dorsal outline; apices briefly divergent, feebly knobbed. Glabrous spots and tubercles as in *nobilitatus*. Fore femur similar to that of *nobilitatus*, 2.0x wider than hind femur. Fore tibia (Fig. 141) bowed as in *nobilitatus*, but becoming slightly wider apicad of bend; distal tooth 0.5x as long as width of tibia at apex. Ventrite 5 across base 2.4x wider than long; moderately convex apically; apex truncate-emarginate; scales and setae slightly more numerous toward sides. Aedeagus and internal sac of paratypes as in Diagnosis and Figs. 177, 178 (type not dissected).

Allotype, female, length 11.3 mm, width 4.8 mm. Differs from type as follows. Rostrum 1.2x longer than wide. Epistoma occupying 0.4 of anterior edge of rostrum. Elytra across humeri 1.5x wider than prothorax. Elytra 3.8x longer than prothorax. Elytra wider in central third than in type; sides rounded-triangular beyond apical umbone, sutural interval terminating in distinct, medially directed tooth. Sutural interval at summit of declivity with sparse line of long, erect setae, the longest as long as 5 scales. Fore femur 2.0x wider than hind femur. Fore tibia as in Fig. 142. Caudal surface of ventrites 2 and 3 equal, perpendicular, evenly arcuate; margin of ventrite 4 slightly posteriorly directed, evenly arcuate from extreme sides. Ventrite 5 across base 2.0x wider than long, with a slight depression along middle of side, apex briefly truncate. Ventrite 2 evenly squamose, remaining ventrites slightly less densely squamose medially. Spermatheca of paratypes as in Figs. 196 and 198 (allotype not dissected).

Type Series.-Holotype, BRAZIL, Rio de Janeiro, Corcovado, GB, X.1961, M. Alvarenga, Ex-coleção M. Alvarenga (São Paulo). Allotype, BRAZIL, Corcovado, Guanabara, VIII.1965, Alvarenga & Seabra, Coleção M. Alvarenga (Curitiba). Paratypes, 12 males, 13 females. BRAZIL. 3 males, 1 female, no other data (Dresden, Oxford). Rio de Janeiro: 1 female, no other data, Fry (London); 2 males, 1 female, same data as type but IX.1961, XI.1958, VIII.1960 (São Paulo); 3 males, 5 females, same data as allotype but IX.1967, 3.XI.1958, X.1960, IX.1969 [3], 18.IX.61, J. S. Moure [2] (Curitiba, São Paulo, Howden); 1 male, Corcovado, GB, 6/X/967, Moure & Seabra (Howden); 1 male, GB, Corcovado, S.A.F. Col. No. 68 (São Paulo); 2 males, 2 females, Rio de Janeiro, Guanabara, X.1963, IX.1970 [2], XI.1970, M. Alvarenga (Washington); 1 female, Nov. Friburgo, Bescke (Oxford). No data, 2 females (Oxford, Washington).

Remarks.-Males vary in length from 8.2-10.5 mm and in width from 3.0-4.2 mm. Females vary in length from 9.4-12.8 mm and in width from 3.6-5.0 mm. The dorso-lateral edges of the rostrum range from parallel to convergent basally. Females have as many as seven long setae on the sutural interval on the declivity. The two teeth of the distal end of the fore tibia of the female are equal in size in four specimens, unequal in the remaining nine; the distalmost tooth is always the smaller when the teeth are unequal. In one extreme female the second tooth is fully twice as large as the distalmost tooth. Ventrite 5 of the female varies from 1.8-2.2x wider than long, of the male 2.0-2.4x wider than long.

Apparently this species is concentrated on and around Corcovado, although there is one historic Bescke specimen from Nova Friburgo (*see* Papavero 1971:88). In a mixed collection the species is conspicuously different from *nobilitatus* in its more robust form and reddish lustre. The form of the distal tibial teeth in both sexes and the apex of the elytra of the male will confirm the identification, and the genitalia of both sexes are quite different from those of *nobilitatus*.

The female of *atomarius* also has a pair of tibial teeth, but in that species the more distal tooth is the larger one if the two teeth are not equal. *H. atomarius* differs in the weak or absent metallic lustre, presence of a short tooth on elytral apex of male, pointed caudal margin of ventrite 4 of female, and absent or obsolete femoral flange.

Worn males of *excubitor* can be separated from the sympatric *togatus* by the rostrum narrower and more concave, epistoma granular, apical umbone less prominent, prothorax with scales of sides similar to those of disc and not concentrated in a vitta of dense overlapping scales, and the presence of a weak distal flange on the fore femur.

There is a sample of two males and five females from Santa Catarina which differ from typical *excubitor* as follows. Males, length 9.1-9.2 mm, width 3.4-3.5 mm; *females,* length 10.6-11.6 mm, width 4.3-4.7 mm. Color subdued, lustre almost completely absent, scales gray-green; markings faint tan or flesh colored. Scales smaller, more numerous, the surface more completely covered, glabrous spots on elytra smaller, often flat, much narrower than the width of the interval. Setae of elytral intervals more numerous, not uniserial, randomly placed; setae straight, erect. Sutural interval on declivity in female with as many as 12, averaging 10, long setae. Fore femur of male 1.7x wider than hind femur. The internal sac of the male is indistinguishable from that of Corcovado specimens; the spermatheca (Fig. 197) is very close to that of Corcovado specimens. I am uncertain whether these Santa Catarina specimens are geographic variants of *excubitor* or a sibling species.

Data on the Santa Catarina specimens are as follows: 1 male, no other data (Berlin); 1 male, Sao Bento, 26.0S 50.0W, 800 m, Dec. 1924, Antonio Maller (London); 1 female, Lanca, Oct. 1944, A. Maller (New York); 4 females, Nova Teutonia, XI. 1966, XI. 1967, X.1967, X.4.1962 (Curitiba, São Paulo, Howden).

The position of the Corcovado range "guarding" Rio de Janeiro suggested the name *excubitor* meaning "sentinel," which at the same time implies a relationship with *nobilitatus*.

27. *Hadromeropsis* (*Hadromeropsis*) *fasciatus* (Lucas)

Figs. 27, 146, 157, 158, 179, 180, 199, 200; Map 6

Hadromerus fasciatus Lucas, 1857:156. LECTOTYPE, HERE DESIGNATED, female, labelled with round green disc with "11 44" in ink on underside; vertical label "Hadromerus fasciatus, sp.n."; on green card "Museum Paris, Rio de Castelnau" (Paris). *See* Type Material.

Hadromerus herbaceus Lucas, 1857:157. LECTOTYPE, HERE DESIGNATED, male, labelled with round green disc with "11 44" in ink on underside; vertical label "Hadromerus herbaceous, sp. n."; on green card "Museum Paris, Rio de Castelnau" (Paris). *See* Type Material. NEW SYNONYMY.

Diagnosis.-Moderate to large in size. Female with conspicuous dark postmedian fascia which often appears to be composed of 3 diamonds (Figs. 27, 157), also with dark cordiform scutellar area, this area and both edges of fascia bordered conspicuously in white. Male tessellate with pattern similar to that of female but fainter. Female usually with white, tan and obscure scales; male usually with white and green or neutral scales, the latter vivid iridescent green under microscope, less frequently with pastel blue or opalescent scales. Sides of epistoma (Fig. 158) anteriorly slightly elevated and produced forward in a lobe; lateral angle of anterior edge of rostrum swollen in a distinct pterygium below scrobe and in front of antennal insertion; these characteristics of rostrum all much more pronounced in female than in male. Elytral declivity (Fig. 157) with conspicuous glabrous setiferous tubercles, otherwise without a naturally glabrous spot. Edge of elytra around ventrite 5 with acute setiferous tubercles. Internal sac without a sclerotized plate ventrally (Figs. 179, 180).

Description.-Male, length 9.2-13.6 mm, width 3.4-4.8 mm. Female, length 10.7-16.5 mm, width 4.5-6.4 mm. Color and pattern as in Diagnosis and Fig. 27. Densely squamose dorsally and ventrally except ventral surface of head and rostrum and spots of prothorax and elytra glabrous; scales often abraded from postmedian fascia of female. Female with golden red metallic lustre (as in Lucas' description of fasciatus) primarily on the tan and obscure scales; lustre never strong, most frequently present on declivity; male with golden red lustre infrequent, weaker. Scales of prothorax smaller, sparser, often darker along median third thus creating a subvittate appearance. Rostrum as in Diagnosis and Fig. 158. Rostrum flat or feebly concave basally, dorso-lateral edges parallel or feebly divergent anteriorly. Setae of head and rostrum slender, recumbent, as long as 1.5-2 scales. Epistoma 0.25-0.3x as wide as anterior edge of rostrum. Median line of rostrum impressed from between middle of eyes for basal half or less, often glabrous but not impressed for remaining distance to apex of epistoma. Prothorax 1.1x wider than long in male, almost 1.2x in female; sides moderately rounded between constrictions; apical constriction obsolete dorsally; female especially with vague flattened area on disc on either side of median line. Setae of prothorax arising from small glabrous spots, those of sides often pustulate; setae up to 3 scale lengths. Elytra across humeri averaging 1.3x wider than prothorax in male, 1.4x wider in female. Elytra averaging 3.0x longer than prothorax in male, 3.5x longer in female. In dorsal view elytra of male parallel-sided from base to beyond middle thence very gradually convergent to apical umbone which enters outline, apex broad beyond umbone, individual apices briefly divergent with a small elongation or not. Elytra of female (Fig. 27) wider at middle where they are approximately 1.2x wider than across humeri, apical umbone more prominent, apex approximately triangular; sutural interval at apex produced in acute, vertically contiguous tooth. Setiferous tubercles of intervals 8 and 9, apical umbone, and edge of elytra around ventrite 5 acute and conspicuous in dorsal view. Elytra with random glabrous spots ranging in size from scarcely more than the size of a scale (in densely squamose white areas) to full width of an interval, occasionally confluent in male especially; all glabrous spots convex, those of base of elytra and declivity more so, pustulate or tuberculate. Setae arising from glabrous spots straight, often erect on base of elytra, semi-erect on disc, erect on declivity; as long as 1.5-5 scales, shorter in female than in male, longest on declivity. Sutural interval on declivity with a row of 4-6 long setae in male, 8 in female, setae longer in female than in male. Legs, metasternum, and abdomen with many fine, long setae in male; in female setae much sparser, shorter, curved. Fore femur 1.6-1.8x wider than hind femur in male, 1.4x wider in female; without distal flange; sculpture consisting of obsolete pustules at most. Fore tibia (Fig. 146) slightly bowed distally; distal tooth 0.4-0.7x width of tibia in male, shorter in female. Male ventrite 5 across base 1.9x wider than long, almost flat, scales slightly sparser apically only, apex narrowly truncate. Female caudal surface of ventrites 2, 3, and 4 equal, perpendicular, polished, margin evenly arcuate; ventrite 5 across base 1.6-1.8x wider than long, almost flat, with or without scales. Aedeagus and internal sac as in Figs. 179, 180. Spermatheca as in Figs. 199, 200; nodulus on different plane.

Type Material.-*Hadromerus fasciatus* Lucas, PARALECTOTYPE, HERE DESIGNATED, 1 female, labelled like the lectotype but without the vertical label (Paris).

Hadromerus herbaceus Lucas, PARALECTOTYPES, HERE DESIGNATED, 2 males: 1 male, labelled like the lectotype but without the vertical label (Paris); 1 male, labelled with round green disc with "35-42" in ink on underside; rectangular white label "Museum Paris, Bresil, Parzudacki 1842" (Paris).

According to Mlle. Perrin (Muséum National d'Histoire Naturelle, Paris), the numbers "11 44" on the underside of the round green label of the lectotypes of *fasciatus* and *herbaceus* represent order No. 11 of the Castelnau collection of insects from "Rio", received at the Museum in 1844. The "35 42" on the underside of the label of one of the *herbaceus* paralectotypes refers to a collection of Coleoptera from Brazil acquired by Mr. Parzudacki, or reaching the museum, in 1842.

Papavero (1971:149-152) describes Castelnau's trip from his arrival in Brazil in 1843 until the insect collections "gathered in and about Rio" reached Paris. But there seems to be no way to define the type locality, "Bresil interieur," more specifically.

Distribution.-Map 6. BRAZIL. Bahia [1]. Minas Gerais (?): Sertão de Diamantina. Rio de Janeiro: Itatiaya, Montagnes des Orgúes (Massif de la Tijuca), Nova Friburgo, Rio de Janeiro. Santa Catarina: Corupá. São Paulo.

Specimens were collected in February primarily, also March and April.

Specimens examined: 38 males, 71 females. Specimens in: Auckland, Basel, Cambridge, Curitiba, Dresden, Eberswalde, Ithaca, London, Oxford, Paris, São Paulo, Stockholm, Washington, Howden.

Remarks.-Variation or extremes not included in the description include the following. In the Diamantina male and several others, the sides of the elytra are slightly constricted behind the humeri making the humeri extremely prominent. This same Diamantina male has the tubercles of the declivity especially long and acute. The vivid metallic green iridescence common in males is almost unique to males; only two females had any green iridescence. One female had no browns or tan but was all gray and white without the typical female golden red metallic lustre. In no specimens were the light and dark areas of the prothorax sharply defined as in *togatus*.

The large size combined with the distinctive postmedian fascia readily distinguish most specimens; the sharp tubercles along the edge of the apex of the elytra are helpful in distinguishing poorly marked specimens from *togatus* (no trace of tubercles), large *nobilitatus* (weak tubercles) and *excubitor* (no tubercles). The rostral flanges are diagnostic but not always strong; because they overhang the mandibles they are subject to abrasion and in one specimen one of the lobes was actually broken off.

This species frequently appeared in collections under the names *togatus*, *brachispinosus*, and *porosus* (a *Pandeleteius*).

This species grades into the subgenus *Hadrorestes* in the tuberculate margin of the elytra and twisted spermatheca. However, the form of the male genitalia and separated striae 9 and 10 are clearly of the *nobilitatus* lineage.

Hadrorestes, new subgenus

Type-species, *Hadromeropsis* (*Hadrorestes*) *pectinatus* n. sp., by present designation.

Diagnosis.-Dorsum of male glabrous or almost (except *exilis*); dorsum of female glabrous to densely squamose, often within the same species. Dorsal color pattern often formed of aggregations of scales into specific spots, fasciae and vittae against glabrous integument. Integument particularly thick and hard. Elytra with apical edge around ventrite 5 conspicuously dentate or tuberculate (except in brachypterous species). Striae 9 and 10 confluent or at least confused under apical umbone. Male* with internal sclerites of internal sac never flagellate; membranous parts of internal sac not distinctly spiculate in most species, at most with very pale, minute spicules. Apex of internal sac lightly to strongly sclerotized; apex directed ventrally, distally, or dorsally. Female* with paired lateral sclerites in vagina caudad of bursa copulatrix (except in *cavifrons*). Spermatheca in most species with nodulus and ramus directed in different planes.

* Male genitalia are not known for 8 of the 23 species; female genitalia are not known for 4 species.

Description.-Scape when positioned in the scrobe exceeding the eye in most males; in females scape exceeding eye or reaching its caudal edge. Dorsal surface of mandible smooth, punctate, or grooved. Dorsum and legs with or without elaborate sculpture, tubercles, and microsculpture according to the species; sculpture always reduced in squamose examples of same species and sculpture of legs especially reduced in females of same species. Elytra without rows of long, erect setae (except *institulus*); many species with long, wispy setae across base of elytra, these setae probably associated with production of a paraffin-like wax. Middle tibia both sexes and hind tibia in many females with a row of stout, slanting bristles.

Remarks.-With few exceptions, the species assigned to this new subgenus on morphological characters occur at elevations of 2000 m and above, and all are known only from the Andean cordilleras including the Sierra Nevada de Santa Marta, but excluding the coastal cordillera of Venezuela. A possible exception is *dialeucus* described here from seven specimens with no data except "Venezuela".

The species seem to be uncommon; in one 10-day collecting trip in northern Ecuador, I took five specimens representing four species. In a trip to the Sierra Nevada de Santa Marta, H. Howden and J. Campbell took only eight specimens of *nebulicolus* in a concerted effort.

The integument is so hard that the metasternum often cracks in the pinning process, but it also probably confers some protection against predators. In this subgenus, eight specimens (representing seven species) had a damaged left elytron consisting of chips out of the edge and cracks in the area of the apical umbone.

The name *Hadrorestes* is formed of "hadro," meaning thick, from the first part of the generic name *Hadromeropsis*, and "orestes," meaning mountaineer, and referring to the occurrence of the subgenus in the mountains. The name is masculine.

The *alacer* Group

28. *alacer* n. sp.
29. *inconscriptus* n. sp.
30. *nebulicolus* n. sp.
31. *silaceus* n. sp.

Characteristics of Group.-Large, 12-20 mm in length. Mandible with dorsal setae set in a transverse depression which is weak or strong, depending on the species. Eye separated by approximately its own diameter from anterior edge of prothorax thus forming a slight neck (Fig. 26). Postocular vibrissae weak, consisting of a few fine, short setae arising from a lobe or tooth. Elytra with punctures not aligned in striae and with many extra punctures of the same size. Elytra not flattened in profile dorsally. Multiple acute tubercles of lateral intervals visible in dorsal outline of basal half of elytra, weaker tubercles of declivity and edge of apex also visible in dorsal outline. Base of elytra with postscutellar area weakly flattened at most; stria 5 moderately depressed. In glabrous specimens fore femur with weak honeycomb or netted sculpture proximally; distally becoming coarser, irregularly rugose or foveate and with weak tubercles, those of posterior face often shelf-like in males. Fore tibia of male slightly deflected distally; inner edge with a row of many small denticles each rounded at its apex; outer surface of fore tibia strigose-punctate. Fore tarsus (Figs. 302, 304, 306, 309) with segment 2 subquadrate, abruptly tapered proximally. Female with caudal surface of ventrites 2, 3, and 4 equal in height, smooth and polished, the edge not acute on ventrites 2 and 3 and slightly anteriorly directed. Internal sac internally with a heavily sclerotized structure resembling a bone with condyle at proximal end; apex of internal sac forming a short cone, the cone directed ventrally when internal sac is evaginated.

Remarks.-Characters shared with the *impressicollis* group include: elytra not striate and eye remote from anterior edge of prothorax by its own diameter (male) or more (female). It is interesting that these two groups and *exilis*, all with the eye far removed from the prothorax, also have the postocular vibrissae greatly reduced in size. If the postocular vibrissae are used to groom the eye, excessively long vibrissae would be needed because of the length of the neck. It could be argued that instead of extreme elongation to maintain the grooming function, the vibrissae have degenerated.

In this group the apical edge of the elytra is the smoothest in the subgenus, except for the brachypterous species.

A distinct sclerotized plate was observed inside the bursa copulatrix of one *nebulicolus* and one *alacer*, but information on this condition is incomplete for the group. Larger series and staining are required for further study.

28. Hadromeropsis (Hadrorestes) alacer n. sp.

Figs. 26, 201-203, 207-209, 294, 295, 302, 310, 311, 336; Map 9

Diagnosis.-Pronotum with lateral depression or flattened area (Figs. 207, 208). Sides of metasternum and abdomen not clothed differently from rest of metasternum and abdomen, squamose or not; metasternum with a patch of imbricate white scales above hind coxa. Disc of elytra in glabrous specimens (i.e., without large scales) with foveae randomly but densely and rather evenly distributed (Fig. 203), many contiguous and forming short transverse depressions. Apex of elytra of female slightly triangular. Ventrite 5 of male distinctly emarginate (Fig. 294). Ventrite 5 of female laterally not depressed below level of margin. Apex of aedeagus simply triangular with a slight lip.

Description.-Holotype, male, length 14.2 mm, width 5.0 mm. Similar to Fig. 201. Black and various shades of reddish brown; head, abdomen, meso- and metathorax black. Appearing glabrous macroscopically but all surfaces except tarsi rather evenly clothed with minute scales, those of head and rostrum ochraceous and round, most scales elsewhere white, elongate. Ventrally with patch of dense, white imbricate scales beside middle coxa and on posterior-lateral corner of metasternum above hind coxa. With long, wispy setae as follows: a few on ventral surface of apex of rostrum; on sides and ventral surface of prothorax, on base of elytra, on remainder of ventral surface and legs except tarsi. Head and rostrum with coarse punctures rapidly converging to form rugae on dorsum of rostrum. Rostrum broadly, deeply concave. Mandibular groove weak, with 2 setae. Eye especially prominent anteriorly, perpendicular to side of rostrum. Prothorax 1.1x wider than long; sculptured as in Fig. 207 and Diagnosis; apical constriction weak dorsally. Elytra across humeri 1.3x wider than prothorax, elytra 3.0x longer than prothorax. Sculpture of elytra as in Diagnosis and Fig. 203. Setae of disc of elytra inconspicuous, approximately as long as the diameter of one fovea; setae of lateral intervals similar to those of silaceus but shorter. Apex of elytra as in Fig. 202, briefly truncate. Summit of declivity with 9 long setae on sutural interval, these long setae approximately as long as the setae on apical margin of elytra, much shorter than the long setae on summit of declivity in female. Fore femur similar to but more strongly sculptured than Fig. 109; 2.2x wider than hind femur; inner edge with strong, brief, arcuate flange; posterior face with 10 very strong and several weaker shelf-like tubercles. Fore tibia with a few granules on inner surface; outer surface of all tibiae very strongly sculptured. Fore tarsus as in Fig. 302. Ventrite 5 as in Diagnosis and Fig. 294; 2.0x wider than long. Last tergite with fine microsculpture between small punctures. Aedeagus and internal sac as in Figs. 310, 311.

Allotype, female, length 16.5 mm, width 6.7 mm. Differing from type as follows. Similar to Fig. 26. Integument reddish except black head, meso- and metathorax, ventrites 1 and 2 and median vitta on pronotum. Squamose except as follows: scales abraded from more elevated positions as dorso-lateral edges of rostrum, median line of pronotum, elytral suture, and transverse arc on metasternum, the black or reddish color of the integument thus forming dark markings. With round ochraceous scales dorsally and ventrally and on legs; scales more elongate on sides and ventral surface of head and rostrum, very densely imbricate near middle and hind coxa where male has white spots; scales greenish white on pronotum and on disc of elytra in 3 obscure fasciae; scales darker and abraded in broad fascia at apical third. Sculpture of head, rostrum and pronotum absent, replaced by scales. Rostrum with shallow concavity, median line deeply foveate between eyes. Prothorax with apical constriction unmarked on disc, with tubercles of sides replaced by shiny granules scarcely larger than a scale. Elytra across humeri 1.5x wider than prothorax, elytra 3.4x longer than prothorax. Sculpture of elytra reduced, the larger concentrations of scales in depressed areas. Apex of elytra slightly triangular, ending in a brief tooth, with slight swelling at junction of intervals 3 and 9. Sutural interval with approximately 10 long setae at summit of declivity (some obviously broken off). Fore femur 1.2x wider than hind femur. Ventrite 5 (Fig. 295) weakly convex longitudinally, laterally flattened, 1.75x wider than long. Genitalia of paratypes as in Fig. 336; spermatheca very slightly deflected between nodulus and ramus; spermathecal duct 3-4 mm long, attached to a faint sclerite within bursa copulatrix.

Type Series.-Holotype, COLOMBIA, Staudinger (Dresden). Allotype, COLOMBIA, Bogotá, Fry Coll. 1905-100 (London). Paratypes, 3 males, 4 females. COLOMBIA. Valle: 1 male, 1 female, Caucathal, Coll. J. Faust, Ankauf 1900 [1], Gehr W. Muller Vermacht 1909 [1] (Dresden). ECUADOR. Carchi-Napo border: 1 female, Sebundoi, 11-15.IX.1977, 2600 m, L. Peña (Howden). Napo: 2 males, 7 km S Baeza, 2000 m, 21, 25.II.1979, H & A Howden, on bamboo [1] (Howden). Pichincha: 1 female, Quito, 24362, Fry Coll. 1905-100 (London). Tungurahua: 1 female, Runtun, 22.XI.1938, Coll. F.M.Brown (New York).

Remarks.-The males vary in length from 12.4-14.0 mm and in width from 4.1-4.8 mm. Females vary in length from 14.0-17.6 mm and in width from 6.1-7.0 mm. The male paratype from Colombia has coloring as the type, and the two from Ecuador are all black except the femora reddish. The type has many more scales on the head than the other males. Two males lack the middle coxal spot, all have the hind coxal spot. The apex of the elytra in all males is less truncate than in the type. The internal sac was dissected in three of the four males; two females were dissected, one each from Colombia and Ecuador.

The two males from Baeza are so different in habitus that special mention is made of them here. Figures 208 and 209 illustrate their much smoother integument. In addition they are smaller, have fewer long wispy setae, and lack the long setae at the summit of the declivity.

The female from Colombia is not squamose as the allotype, but covered with minute scales as the holotype; the sculpture on this specimen is slightly reduced from that of the holotype. All squamose females (Fig. 26) have the median line of the pronotum dark, a dark area bordering the postscutellar depression, and a short to wide fascia at the apical third, the latter widest in the allotype in which it extends the full width of the elytra.

Many specimens have the dorso-lateral edge of the elytra (interval 8 of striate species) from the humerus to the apical umbone slightly elevated.

It is the sculpture of the elytra and form of the prothorax that help to associate the sexes of silaceus and alacer when dealing with squamose females and glabrous males. Also, in silaceus both sexes seem to lack the erect long setae on the sutural interval whereas they are present, often in both sexes in alacer.

Of the specimens from Baeza, one was collected when it flew onto a bamboo overhanging the path and the other was taken on an unidentified herbaceous plant nearby. Both specimens were very lively, hence the name alacer.

29. Hadromeropsis (Hadrorestes) inconscriptus n. sp.

Figs. 204, 298, 299, 304, 312, 339; Map 9

Diagnosis.-Similar to alacer but setae of disc of elytra (Fig. 204) as long as twice the diameter of a fovea; fore femur of male with entire distal half almost uniformly set with small shelf-like tubercles; cone-like apex of internal sac longer (Fig. 312); spermatheca very long and twisted (Fig. 339).

Description.-Holotype, male, length 14.2 mm, width 5.0 mm. Black, shading to piceous at extremities. With minute oval or elongate elliptical white scales on head, rostrum, sides of prothorax, elytra; scales very sparse ventrally. With patch of imbricate white scales on metathorax in front of hind coxa and a few scales clustered on side of ventrites 3 and 4. With long, wispy setae as follows: on sides and apex of ventral surface of rostrum, on prosternum (none on sides), a few across base of elytra, on remainder of ventral surface and legs except tarsi. Head and rostrum strongly punctate, very few punctures confluent along median line, otherwise similar to alacer. Prothorax 1.1x wider than long, lateral depressions more conspicuous than in alacer; median line convex and punctate, sculpture rapidly changing to discrete tubercles each bearing a long, curved seta; apical constriction weak dorsally. Elytra across humeri 1.2x wider than prothorax, elytra 2.5x longer than prothorax. Base of elytra without postscutellar depression. Elytral sculpture as in Fig. 204, foveae very deep and crowded, rarely confluent. Setae of elytra as in Diagnosis; setae of lateral intervals only slightly longer than those of disc; sutural interval at summit of declivity with setae much longer. Apices of elytra briefly, individually rounded. Fore femur 2.2x wider than hind femur; inner edge with strong, brief, arcuate flange. All setae of femora and tibiae long and wispy. Fore tarsus as in Fig. 304. Ventrite 5 in Fig. 298. Last tergite sculptured as in alacer but setae much more numerous and longer. Aedeagus similar to that of alacer; internal sac as in Fig. 312 and Diagnosis.

Allotype, female, length 15.3 mm, width 6.2 mm. Differs from holotype as follows. Scales more numerous; with a very small cluster of scales beside middle coxa. Long, wispy setae reduced in number except on abdomen. Sculpture of head and rostrum weaker, concavity elongate triangular from about middle to very deep fovea on median line between eyes. Prothorax with sculpture weaker. Elytra across humeri 1.4x wider than prothorax, elytra 3.3x longer than prothorax.

Elytra widest at middle, sides gradually rounded from there to apex, umbone very weak, just touching dorsal outline; apex with short tooth. Elytra with foveae more frequently confluent. Sutural intervals at summit of declivity with approximately 8 long setae. Fore femur 1.4x wider than hind femur. Ventrite 5 (Fig. 299) across base 1.7x wider than long, evenly convex from base to narrow apex, sides not at all flattened, surface coarsely but sparsely punctate, with very long setae. Spermatheca as in Fig. 339 and Diagnosis; spermathecal duct 2.5 mm long.

Type Series.-Holotype and allotype, PERU, Cuzco, Alfamayo, 40 km SE Quillabamba, Elev. 2600 m, 8.Jan.1979, W.E. Steiner, mating pair (Washington, USNM Type No. 100194).

The pair was taken on new growth on a woody composite.

Remarks.-Until it was cleaned with ammonia, the male had every elytral fovea filled with wax and all the long, wispy setae matted down with the semi-opaque wax.

The characteristics of the male and female genitalia were the prime reason for considering this a different species from alacer. As additional specimens become available, the other differences noted can be assessed for variation and possible diagnostic value: individually rounded apices of elytra in male, weaker apical umbone, slightly less prominent eye, and presence of scales on ventrites 3 and 4. In addition, the locality may be significant.

A female from Yungas de La Paz (Kuschel Coll., Auckland) may be this species. The specimen is 12.7 mm long, 5.0 mm wide and differs from the allotype as follows: prothorax rather strongly sculptured; elytral tooth obsolete; sutural interval at summit of declivity with only 3 long setae; abdomen densely squamose except for flat circular glabrous spots from which setae arise; scales more elongate centrally on abdomen; surface of ventrite 5 with sides flat, punctuation weaker; spermathecal duct 4.0 mm long. The specimen is missing both fore legs. The spermatheca and lateral sclerites are as in Fig. 339.

Hadromeropsis impressicollis males bear a superficial resemblance to alacer and inconscriptus especially in the prothorax and coxal spots, but impressicollis differs in the base of the elytra not impressed at stria 5, elytral foveae much more distant, rostrum more nearly perpendicularly sided, scutellum white-scaled, and other group characteristics. Note in Fig. 312 the proximal end of the internal sclerite is split and elongated dorsally, in this respect being intermediate between impressicollis and the other alacer group species.

The name "inconscriptus" means "unarranged" and refers to the appearance of the elytral punctures.

30. Hadromeropsis (Hadrorestes) nebulicolus n. sp.

Figs. 205, 296, 306, 313, 314, 338; Map 9

Diagnosis.-Elytra sparsely (in male) or densely (in female) clothed with rounded white and pale colored scales, both sexes with a vague postmedian V or U-shaped fascia outlined in larger, usually paler scales; some specimens with metallic green scales ventrally and on sides of elytra. Female with, male without long, erect setae at summit of declivity. Elytral striae often faintly discernible. Ventrally with an area of imbricate scales on metasternum above hind coxa, often with other patches as well. Last tergite of male very finely, sparsely, punctate; setae short. Cone-shaped apex of internal sac evenly sclerotized (Fig. 313).

Description.-Holotype, male, length 14.6 mm, width 5.0 mm. Black, extremities shading to piceous. Patterned dorsally with scales of various sizes from small to medium, mostly rounded, white and pale shades of gray, ventrally some vivid blue-green as well. Scales of head and rostrum very sparse, not arranged in a pattern except a partial border above eye; scales of pronotum slightly more numerous and larger in a vague vitta between eye and stria 4; scales of elytra with larger white scales vaguely defining a basal semicircle and a postmedian "V". Ventrally with blue-green scales in a small patch on fore coxa and beside it, on mesepisternum anteriorly, on side of middle coxa, on metepisternum (very small cluster), on metasternum laterally adjacent to hind coxa and continuing onto coxa itself, and in small clusters on side of every ventrite. With long, wispy setae as in alacer. Head and rostrum densely, finely punctured; some punctures confluent in concavity. Mandibular groove weak but distinct. Eye moderately prominent anteriorly. Prothorax almost as long as wide, sides widest caudad of middle, lateral flattened area obsolete. Pronotum with median line very finely, partially impressed, otherwise sculpture of disc similar to that of alacer. Elytra across humeri 1.3x wider than prothorax, elytra 2.8x longer than prothorax. Elytral sculpture with fewer extra-strial punctures or foveae than in alacer, striae partly discernible amongst the other sculptural details; with various irregular, rectangular, depressed areas containing aggregations of scales. Setae of elytra compared to those of alacer slightly longer, more conspicuous, white; setae of sutural interval at summit of declivity scarcely longer, less curved; setae of lateral intervals as in alacer. Apices of elytra very slightly individually rounded. Fore femur 1.7x wider than hind femur; posterior face with about 10 weak shelf-like tubercles; distal flange weak, with several small tubercles on edge. Sculpture of tibia weaker than in alacer. Fore tarsus as in Fig. 306. Ventrite 5 (Fig. 296) broadly truncate-emarginate. Last tergite as in Diagnosis. Aedeagus as in Fig. 314; internal sac not evaginated in type, in paratypes as in Fig. 313 and Diagnosis.

Allotype, female, length 17.8 mm, width 7.1 mm. Differs from type as follows. Densely covered dorsally and ventrally with ochraceous scales; integument naturally glabrous only briefly along median line of pronotum and broadly medially on metasternum and abdomen where scales are distant. Scales particularly dense ventrally where type has patches of scales. Pattern of elytra similar to that of type but encircled areas filled with darker scales; interval 9 from base to middle and interval 8 from middle to apex paler, forming an indistinct vitta. Sculpture of head, rostrum and prothorax replaced by scales; rostrum only weakly concave, median fovea between eyes extremely deep. Prothorax 1.2x wider than long. Elytra across humeri 1.5x wider than prothorax, elytra 3.6x longer than prothorax. Disc of elytra (Fig. 205) almost smooth, weakly undulating between very faintly impressed striae; glabrous areas of postscutellar region subtuberulate. Sutural interval at summit of declivity with 5 very long setae and 5 or more slightly shorter ones. Apex of elytra scarcely constricted under apical umbone, gradually and slightly rounded to short tooth. Fore femur 1.1x wider than hind femur. Ventrite 5 feebly convex apically, apex narrowly truncate, 2x wider than long. Genitalia of paratypes (two dissected) as in Figs. 338; spermatheca in one plane; spermathecal duct 2.5-3.0 mm long, attached to a large vertical sclerotized plate at caudal end of the bursa copulatrix. Lateral sclerites connected caudally by a large U-shaped sclerotization in one.

Type Series.-Holotype, COLOMBIA, Magdalena, San Lorenzo, 41 km S Sta. Marta, 7000 ft, V.5.1973, Howden and Campbell (Howden). Allotype, same data as type but V.9.1973 (Howden). Paratypes, 3 males, 3 females. COLOMBIA. Magdalena: 1 male, 2 females, same data as type but V.3.1973 [1 female], V.7.1973 [1 female], V.9.1973 [1 male]; 2 males, 1 female, San Lorenzo Area, 44 km S Sta. Marta, 8000 ft, V.11.1973, Howden and Campbell. Paratypes in Ottawa, Washington, Howden.

Remarks.-Males vary in length from 11.8-15.0 mm and in width from 3.9-5.3 mm. Females vary in length from 17.8-19.0 mm and in width from 6.7-6.8 mm. The most striking variation is in the coloring of the females; one is similar to the allotype, but the other two are iridescent-scintillating green on all ventral surfaces and legs, sides of head and rostrum, most of prothorax and base of elytra; in one specimen the postmedian fascia is green also. In one male there are a few large scales scattered along the metepisternum. In two of the males the shelf-like tubercles of the fore femur are weaker than in the type; in the third male they are stronger than in the type.

The left elytron of the type has a nip out of the margin and both hind tibiae nicked as if by predators. One of the females has a similar nip and a parallel nip on the opposite elytron with the edge cracked, as well as a longitudinal crack on stria 5 near the base.

In the other three species in this group the apical fascia (when present) is transverse; in nebulicolus it is always distinctly V- or U-shaped.

The species is endemic to the Sierra Nevada de Santa Marta where it was taken in the cloud forest, hence the name nebulicolus, meaning "living in the clouds". The collecting site is described and illustrated by the collectors in Howden and Campbell (1974).

31. Hadromeropsis (Hadrorestes) silaceus n. sp.

Figs. 206, 297, 309, 315, 316, 337; Map 9

Diagnosis.-Glabrous specimens with a vitta on lateral edge of metasternum formed by dense, imbricate, oval white scales; vitta continuing down sides of abdomen almost to apex and anteriorly present on mesepimeron. Pronotum without lateral depression. Disc of elytra of male (Fig. 206) with strial punctures small, surrounding surface smooth or minutely sculptured. Apex of elytra of male and female broadly rounded. Ventrite 5 of male broadly truncate-emarginate (Fig.

297), 1.9-2.2x wider than long. Ventrite 5 of female laterally depressed below level of side margin. Apex of aedeagus very elongate (Fig. 315).

Description.-Holotype, male, length 18.7 mm, width 6.3 mm. Black to piceous. Dorsally without scales except a few minute ones on apex of elytra; small, rounded scales on legs; imbricate oval scales ventrally as in Diagnosis; all scales white. With conspicuous, numerous, long, wispy setae on sides and ventral surface of rostrum; on prothorax dorsally on basal constriction, on sides and on ventral surface; on elytra across base; on entire ventral surface, but sparse on abdomen and on all legs. Head and rostrum irregularly punctate; rostrum moderately longitudinally concave; apex of rostrum and mandibles with many extra, long setae. Mandible foveate-punctate, dorsal 5 or 6 setae contained in foveae in a broad, sharply marked transverse depression. Prothorax 1.1x wider than long; disc slightly evenly convex, basal and apical constrictions equal on sides, apical constriction unmarked on disc, median line unmarked in any way. Disc of pronotum smooth, only very finely, sparsely punctate; sides of prothorax with moderate, discrete tubercles, the long setae arising from punctures as well as from tubercles. Elytra across humeri 1.4x wider than prothorax, elytra 3.2x longer than prothorax. Elytra sculptured as in Fig. 206 and Diagnosis. Setae of lateral intervals, declivity, and edge of elytra short, fine, curved, numerous, 2 or more rows per interval. Apex broadly rounded with brief emargination before suture. Fore femur 1.8x wider than hind femur, distally with a moderate flange with crenulate edge; posterior face with 12 or more weak shelf-like tubercles. Inner surface of fore tibia with several granules. Fore tarsus as in Fig. 309. Ventrite 5 as in Fig. 297 and Diagnosis. Last tergite shiny between large punctures. Aedeagus and internal sac as in Figs. 315, 316.

Allotype, female, length 18.4 mm, width 7.5 mm. Differs from type as follows. All surfaces dorsally and ventrally including legs (except tarsi) evenly covered with small, round, convex, ochraceous scales; scales mostly contiguous except at follicles and granules. Elytra also with pale pinkish scales forming an obscure pattern of a pair of basal rings and various zigzag fasciae. Erect setae apparently as numerous as in type but shorter, those of sides of prothorax especially conspicuous, perpendicular to surface. All sculpture less evident, mostly replaced by scales. White scales of ventral surface of male replaced by densely imbricate ochraceous scales. Prothorax 1.2x wider than long; tubercles of sides replaced by shiny granules averaging diameter of 1 scale. Elytra across humeri 1.5x wider than prothorax, elytra 3.6x longer than prothorax. Postscutellar depression concave. Sides of elytra slightly (1.1x) wider at middle, apex similar to that of male. In profile elytra evenly convex from about basal third, summit of declivity scarcely perceptible; setae of sutural interval on declivity of uniform length, not longer at summit of declivity. Fore femur 1.1x wider than hind femur. Ventrite 5 as in Diagnosis, 2x wider than long. Genitalia of paratype as in Fig. 337; spermathecal duct 2.5 mm long; spermatheca in one plane.

Type Series.-Holotype, COLOMBIA, Baden, coll. J. Faust, Ankauf 1900, "Hadromerus hirtipes J Faust" (Dresden). Allotype, COLOMBIA, same data as type except "Hadromerus silaceus J. Faust" (Dresden). Paratypes, 4 males, 2 females. COLOMBIA. [Antioquia?] : 1 female, Frontina (Oxford). Valle: 1 female, Cauca, ex coll Clerc (Paris). No data, 2 males (Oxford, Howden). Questionable data, 2 males, "Brasilien," Coll. C. Felsche, Kauf, 20, 1918 (Dresden).

Remarks.-Males vary in length from 14.6-17.0 mm and in width from 5.0-6.1 mm; one female is 20.5 mm in length, 7.0 mm in width. The female from Cauca is mostly glabrous, with the elytra sharply patterned with dense, overlapping, small, round scales forming a basal ring, median zigzag fascia, and reverse zigzag fascia across apical third, the latter fascia on side continuing along interval 8 beneath apical umbone in an oblique line to suture; punctures in the naturally glabrous areas slightly larger than in Fig. 206. The paratypes otherwise vary little from the type. The semi-opaque paraffin-like wax is common on the males. None of the females has the long setae commonly found on the summit of the declivity in females.

The species is readily distinguished by the diagnostic characters listed.

Faust's manuscript name, "hirtipes", would be very apt for the species, but the stem has been used often in Tanymecini, so I have chosen the name he attached to the female, "silaceus," which aptly describes the ochraceous color of the squamose females.

The *exilis* Group

32. *exilis* n. sp.

Characteristics of Group.-Head somewhat elongate, eye separated by 0.7x its own diameter from anterior edge of prothorax. Postocular vibrissae weak. Fore femur slender, without sculpture. Internal sac with spiculate lobes; sclerotized apex long, straight, distally directed.

Remarks.-*H*. *exilis* is intermediate between the *alacer* and *impressicollis* groups in the characters above. The species, and hence the group, is represented by a single rather abraded male and it is therefore difficult to assess the characters of punctuation, setae, etc.

32. *Hadromeropsis* (*Hadrorestes*) *exilis* n. sp.

Figs. 363-366

Diagnosis.-Based on unique male. Slender, elytra elongate oval. Clothed with round, iridescent green scales. Brachypterous: wing 0.7x length of elytron, mesepimeron narrow, elytra narrow across humeri. Edge of elytra smooth. Fore femur very slender.

Description.-Holotype, male, length 10.1 mm, width 3.8 mm. Integument black, legs and antennae reddish. Dorsally apparently [specimen abraded] evenly, sparsely clothed with round, iridescent green scales the same size as those of *gemmifer*. Ventrally scales concentrated on sides, only occasional scales in central third. Apparently without long, wispy setae. Head and rostrum (Figs. 363,

364) robust, rostrum approximately as long as wide. Dorso-lateral edges well marked on distal half, gradually weakening and convergent basad. Dorsum of rostrum gently sloped towards median line, median line deeply impressed between anterior half of eyes only. Lateral angle of anterior edge of rostrum slightly produced, extending beyond apex of scrobe more than usual in the genus. Epistoma approximately 1.5x longer than wide, apical edge deeply excised (worn?) (Fig. 363); epistoma occupying 0.26 of anterior edge of rostrum. Surface of head and rostrum smooth except for shallow punctures, some punctures contiguous on base of rostrum. Mandibles positioned so that their dorsal surface not visible. Eye large, round, strongly convex. Prothorax 1.05x wider than long, sides slightly rounded between equal basal and apical constrictions, basal constriction continuous across disc of pronotum, apical constriction absent on disc. Pronotum (Fig. 364) without depressions, weakly convex; sculpture consisting of minute punctures medially, obsolete tubercles laterally. Elytra across humeri 1.3x wider than prothorax, elytra 3.0x longer than prothorax. Elytra as in Diagnosis, summit of declivity and apical umbone unmarked. Elytral striae with distinct, slightly irregularly spaced punctures, some glabrous areas indistinctly elevated on intervals, otherwise with no sculpture. Edge of elytra smooth, without any trace of denticles or tubercles. Apices of elytra briefly divergent, produced in a short, blunt tooth. Setae abraded, but intervals 8 and 9 with prostrate white setae as long as 2 scales. All legs long, slender, with scattered minute punctures, otherwise without sculpture; fore femur 1.3x wider than hind femur, without distal flange; fore tibia almost straight, with 8 small teeth on inner edge, distal tooth only slightly larger, concealed in setae. Middle coxae more protuberant than usual for genus, mesepisternum consequently convex. Prosternum and metasternum finely strigulate. Abdomen long and narrow; ventrite 5 across base 1.4x wider than long, slightly, evenly convex, surface smooth and polished with sparse fine punctures; apex truncate. Genitalia as in Figs. 365, 366; apex of aedeagus cupped and minutely spiculate.

Type Series.-Holotype, male, BOLIVIA, Chapare, 400 m, 3.1951, Zischka leg., Coll. Kuschel (Auckland).

Remarks.-H. exilis is rich in characters as discussed in the group Remarks and species Diagnosis.

It is surprising to find this flightless species at such a low altitude as 400 m. Of the other flightless Hadromeropsis, one occurs at a high altitude of 3760 m in Colombia and the other has no data.

The word exilis means thin, weak, and refers to the slender habitus and inbility of this species to fly.

The impressicollis Group

33. impressicollis (Kirsch)
34. institulus n. sp.
35. bombycinus n. sp.
36. brachypterus n. sp.

Characteristics of Group.-All scales greatly elongate (Figs. 213, 215, 219). Both sexes with scutellum very densely clothed with very long, imbricate white scales; with small patches of similar scales on anterior face of fore femur proximally, on mesosternum beside coxa, and on metasternum anterior to hind coxa. With long, wispy setae on base of elytra except in brachypterus. Pronotum with a pair of lateral depressed or flattened areas as well as median line depressed (Figs. 212, 213, 219) except in brachypterus (Fig. 227). Setae on tubercles of intervals 8, 9, and 10 not strongly curved or erect, prostrate or nearly so. Posterior face of fore femur of male (known only for impressicollis) with shelf-like tubercles. Anterior face and/or outer edge of all tibiae of both sexes covered with conspicuous crowded grooves or strigae.

Remarks.-Three of the four species in this group are represented by females only, and the female genitalia could not be studied for the only species represented by both sexes. H. impressicollis males share the peculiar shelf-like tubercles of the posterior face of the fore femur with the alacer and pectinatus groups.

In the characteristics of the male genitalia and long neck, this group is intermediate between the alacer and exilis groups on the one hand and the remaining Hadrorestes on the other. In impressicollis the apex of the internal sac (Fig. 317) is almost straight, only very slightly curved ventrad, thus beginning the transition from a ventrally directed to a dorsally directed apex; in this respect the distally directed apex of exilis is more advanced. The proximal end of the internal sclerite has a small dorsal spur, transitional between the condyle-shaped end and the strongly reflexed form of the remainder of Hadrorestes.

33. Hadromeropsis (Hadrorestes) impressicollis (Kirsch)

Figs. 210-214, 303, 317-319; Map 11

Hadromerus impressicollis Kirsch, 1867:233. Type, unique male, labelled "Bogota, Kirsch" in India ink on green paper (Dresden).

Hadromerus ruficrus Kirsch, 1867:232. Type, unique female, labelled "Bogota, Kirsch" in India ink on green paper (Dresden). NEW SYNONYMY.

Hadromeropsis subaeneus Voss, 1953:61. Type, destroyed (Strümpel, in litt.). Paratype, female, labelled "Socorro Col. 3500" handwritten, "Sig. C. Rudel, Eing. Nr. 1/49" mechanically printed, "Hadromeropsis subaeneus m." handprinted on white, "Paratype" mechanically printed on orange, "Coll. E. Voss, Eing. 3-75" mechanically printed on white (Hamburg). NEW SYNONYMY.

Diagnosis.-Rostrum with conspicuous longitudinal parallel rugae from interantennal line to head behind eyes, each groove infrequently interrupted and curving around the elongate frontal pit (Fig. 210). Prothorax (Figs. 212, 213) tuberculate, more strongly so on sides and elevated areas, the depressed areas of pronotum and space between tubercles may be smooth and shiny, or transversely rugulose, or minutely granulate; any scales present extremely long and narrow (Fig. 213).

Description.-Male, length 11.0-13.0 mm, width 4.0-4.8 mm. Female, length 14.0-15.0 mm, width 5.6-6.1 mm. Black; antennae, legs and apex of rostrum reddish becoming piceous in older specimens, sometimes with subaeneous lustre in depressed areas of prothorax where glabrous.

Scales white or off-white. Maximum vestiture of females: short, sparsely set scales on head and rostrum as in Fig. 210; side of head with denser, longer scales; prothorax on side (Fig. 213) with very densely placed, very long scales giving a shaggy, furry appearance, these scales sparser in lateral depressions and replaced medially by sparse, shorter scales directed anteriorly; elytra with long scales moderately closely placed except for glabrous trifasciate pattern of indistinct arc at base, oblique fascia before middle, and parallel oblique fascia halfway to apex. Minimum vestiture of female: prothorax with scales absent on disc, reduced to vitta on side; elytra with only a few scales medially, remainder of surface with minute scales like the setae of strial punctures. Vestiture of male like minimum vestiture of female. Long, wispy setae present on ventral surface including ventral surface of femora and tibiae, on base of elytra, and, at least in female, on sides of prothorax. Rostrum as in Diagnosis and Fig. 210. Eye separated from anterior edge of prothorax by its own diameter. Prothorax 1.1-1.3x wider than long in male, 1.25-1.3x wider in female. Prothorax as in Diagnosis and Figs. 212, 213; when glabrous, sculpture much more evident; median depression weaker in female, absent in *subaeneus* paratype. Elytra across humeri 1.2x wider than prothorax in male, 1.3x wider in female; elytra 2.8-3.0x longer than prothorax in male, 3.3-3.6x longer in female. Apical umbone scarcely distinguishable. Apices of elytra briefly individually rounded in male; in female with a very brief tooth (Fig. 214). Sutural interval at summit of declivity without additional long setae in male; in female with at least 1 very long straight and several long curved setae. Elytral intervals except on disc with a row of tubercles, each tubercle approximately the diameter of a strial puncture, female in addition with a few weak transverse rugosities, intervals 7 and 8 "with less regular rows of tubercles, so that the side contour of the elytra appears crenulate" as in the description of *subaeneus* by Voss (1953:62). Each tubercle with a single fine seta, those of extreme base long, erect and wispy, those elsewhere curved; setae present the length of each interval whether arising from tubercle or not. Strial punctures ranging from nowhere aligned to perfectly aligned in rows (1 male); on declivity striae confused to absent in all specimens. Fore femur of male 1.8-2.0x wider than hind femur; inner edge with abrupt conspicuous, short, thick flange, its edge crenulate or smooth; anterior face of fore femur rugulose on distal half; posterior face with shelf-like setiferous tubercles moderately to strongly developed. Fore femur of female 1.3-1.4x wider than hind femur; posterior face without shelf-like tubercles. Fore tibia on inner edge with 8-18 nearly uniform equidistant teeth, proximally with a slight flange opposite the femoral flange. Fore tarsus of male as in Fig. 303. Metasternum granulate or tuberculate, the sculpture much weaker in female. Ventrite 5 of male 2.0x wider at base than long, apex broadly truncate; surface flat, punctate, the punctures much denser apically. Male genitalia as in Figs. 317-319. Ventrite 5 of female (Fig. 211) 1.8x wider at base than long. Female genitalia unknown - *see* Remarks.

Distribution.-Map 11. COLOMBIA. Cundinamarca: 1 male, 1 female, Bogotá, Kirsch (the types of *ruficrus* and *impressicollis*) (Dresden). Valle: 1 female, Socorro, 3500 m (the paratype of *subaeneus*)

(Hamburg). No additional locality: 1 male, Felipe Ovale, Q. Ac. 33501 (New York); 1 male, Pascoe Coll. 93-60 (London); 1 female, Muro (Paris); 1 male (Pittsburgh).

Remarks.-The abundant variation observed in the short series is incorporated in the description. Some scales have an iridescent green reflection in certain lights in the densely squamose female.

The female genitalia are unknown. Of the three females seen, two are types and were not dissected. The third specimen had apparently been crushed while alive and the entire contents of the abdomen exuded and removed; when the specimen was dissected the abdomen was empty.

Both the names ruficrus and impressicollis are equally descriptive and appropriate for the species, but neither is uniquely distinctive. Although ruficrus has page priority, the name impressicollis is chosen for this species since it is more distinctive among the names already in the genus.

The high, cold Monte Socorro site is described in Fassl (1915:57-58).

34. Hadromeropsis (Hadrorestes) institulus n. sp.

Figs. 29, 215-218, 340; Map 11

Diagnosis.-Based on female only. Similar to impressicollis female but pattern of elytra tessellate, not at all fasciate; elytra strongly constricted beneath apical umbone; apex of elytra conspicuously flared outward (Figs. 29, 215, 218); and ventrite 5 narrow basally.

Description.-Holotype, female, length 12.2 mm, width 5.0 mm. Black; antennae, legs and rostrum reddish; elytra with faint subaeneous lustre. With patches of long, imbricate, white scales ventrally and on scutellum as in group, but all other scales ochraceous. Scales of head and rostrum as in Fig. 216, evenly distributed on sides. Sides of prothorax with very long scales in a dense vitta; scales of disc of prothorax as in Fig. 217. Elytra with dense patches of very long scales irregularly alternating with glabrous areas of approximately the same size; scales in vicinity of scutellum, humeral angles and apical umbone half the size of the other scales (Fig. 215). Rostrum as in Fig. 216, but weakly concave. Eye separated from prothorax by approximately its own diameter. Prothorax (Fig. 217) scarcely 1.2x wider than long; disc flattened on sides, depressed along median line; in dorsal view long, wispy setae arising from lateral and ventral surfaces particularly conspicuous. Elytra (Fig. 29) across humeri 1.4x wider than prothorax; elytra 3.4x longer than prothorax. Sides of elytra gradually divergent to about apical third where they are 1.3x wider than across humeri, thence broadly rounded, strongly constricted under very prominent apical umbone, expanded apex thus forming a very conspicuous flounce (Figs. 215, 218). With long, wispy setae on at least apical third of intervals 1-4, a few on interval 5; sutural interval with 8-10 long, wispy setae distributed down center of interval, not concentrated on edge of interval at summit of declivity. Elytral tubercles as described for impressicollis female. Strial punctures in slightly irregular rows, disappearing before declivity. Fore femur only 1.15x wider than hind femur, with slight flange on inner edge distally. Fore tibia straight; with 12 or 13 small, equidistant teeth. Caudal margins of ventrites 2, 3, and 4 as in Fig. 218. Ventrite 5 narrow, 1.5x wider at base than long. Genitalia of paratype as in Fig. 340; spermatheca almost in one plane, spermathecal duct 2.0 mm long.

Type Series.-Holotype, ECUADOR, Sabanilla, Dr. Ohaus, 1.1907 (Dresden). Paratype, 1 female, ECUADOR, Loja-Zamora, 26-28.X.1977, 2800 m, L. Peña (Howden).

Remarks.-The paratype differs from the type in the following respects. Length 10.7 mm, width 4.6 mm. Scales of sides of prothorax similar to those of disc of pronotum (Fig. 217); the two sizes of scales of elytra almost the same, the larger size white instead of ochraceous and located only on intervals 1, 2, and 3 medially where they form a conspicuous streak. Rostrum flat dorsally, lateral edges more rounded. Long, wispy setae present on elytral intervals 1 and 3 only. Elytra 3.8x longer than prothorax. Fore femur 1.2x wider than hind femur. Fore tibia with 11 teeth on inner edge.

The species is very close to impressicollis of Colombia. Series of both sexes are needed to define the relationships.

The name is based on the Latin word for flounce and refers to the expanded apex of the elytra.

35. Hadromeropsis (Hadrorestes) bombycinus n. sp.

Figs. 219-222, 225, 341, 342; Map 11

Diagnosis.-Based on unique female (Fig. 220). Entire beetle with a microsculpture that is very uniform, very minutely granular except on elytra where it is irregular, coarser, more alutaceous. Head and rostrum smooth and flat with no other sculpture than the frontal pit (Fig. 222).

Description.-Holotype, female, length 11.4 mm, width 4.9 mm. Color piceous, very slightly aeneous; legs, antennae and apex of rostrum reddish; integument with an alutaceous sheen due to the microsculpture (see head in Fig. 222 and depression of prothorax in Fig. 219). Head and rostrum as in Diagnosis; dorso-lateral edges more rounded than they appear in Fig. 222. Side of head and rostrum with numerous, very fine, prostrate setae or scales of off-white with cupreous reflections. Prothorax 1.1x wider than long. Pronotum with lateral depressions very pronounced, sculptured as in Fig. 219; disc glabrous except for setae arising from tubercles, a few setae on basal constriction, and a few minute setae in depressions. Sides of prothorax with thin line of wider scales forming a vitta; with many long, wispy setae. Elytra across humeri 1.6x wider than prothorax; elytra 3.5x longer than prothorax; elytra 2.3x longer than width across humeri. Sides gradually divergent to just caudad of middle where they are 1.3x wider than across humeri, thence gradually rounded to apex, apical umbone not evident in dorsal outline. Apex of elytra (Fig. 221) truncate at end of intervals 1 and 2 and with a very brief tooth. Striae as in Fig. 220. Intervals with tubercles across base, on intervals 7-10, and on declivity as illustrated; in dorsal view tubercles silhouetted along entire outline of elytra. Sides of elytra

(Fig. 225) and declivity sparsely set with minute seta-like scales. Setae of intervals on disc very sparse, very inconspicuous, appressed, only a few long, wispy setae on base; setae of sutural interval at summit of declivity slightly larger, very fine, completely arched. Fore femur only 1.1x wider than hind femur, distally with vague tibial groove but no distinct flange on inner edge. Tibiae with the parallel grooves typical of group reduced. Fore tibia with approximately 10 small sharp teeth on inner edge. Metasternum sparsely set with small, round, shiny granules. Ventrite 5 across base 1.5x wider than long. Genitalia as in Figs. 341, 342; spermatheca almost in one plane; spermathecal duct 2.3 mm long.

Type Series.-Holotype, PERU, Huánuco, Huamincha, 1600 m, Mar. 1946, F. Woytkowski Coll., Donor Wm. Proctor (New York).

Remarks.-Ventrite 5 appeared almost flat before dissection. If it proves to be flat in future specimens, this would be a useful additional diagnostic character.

The bursa copulatrix appeared particularly tough and muscular; it was opaque even after treatment with KOH. Figure 342 shows a ventral view of the bursa with the inflatable flap and common oviduct pulled back to reveal the base of the spermathecal duct.

This is a very distinctive species with the integument beautifully sculptured producing a sheen like that of black silk broadcloth, hence the name "bombycinus" meaning silken.

36. Hadromeropsis (Hadrorestes) brachypterus n. sp.

Figs. 223, 224, 226-230, 344

Diagnosis.-Based on unique female. Sculpture of prothorax and elytra composed of crowded, small, uniform tubercles, each bearing a recumbent, short, white seta. Brachypterous, wing only 0.7x as long as elytron. Elytra (Fig. 229) inflated medially, 1.4x wider at about middle than across humeri, thence tapered directly to apex with no trace of apical umbone. Mesepimeron slender, protuberant (Fig. 226).

Description.-Holotype, female, length 12.5 mm, width 5.4 mm. Color castaneous; sparsely set with small white setae and seta-like scales. With no long, wispy setae on dorsal or lateral surfaces, a few on prosternum and base of femora. Head and rostrum coarsely rugose (Fig. 223); median line finely impressed between eyes, weakly carinate on rostrum. Rostrum dorsally almost flat, lateral edges abrupt. Sides of head and rostrum with scales only very slightly longer and more numerous. Prothorax (Fig. 227) 1.1x wider than long. Pronotum with lateral and median depressions replaced by slightly flattened area; sculpture as in Diagnosis and in Fig. 227. Scutellum rectangular. Elytra as in Diagnosis and Figs. 228, 229; elytra across humeri 1.2x wider than prothorax, 3.6x longer than prothorax. Base of elytra obliquely inclined anteriorly, humeral angle oblique. Only striae 1-4 discernible on disc, remaining striae irregular and confused or replaced by tubercles and rugosities. Intervals with very fine scales or setae, 1-5 abreast, each smaller or larger than the single white seta at anterior edge of each strial puncture; in addition with a few larger white scales in a rudimentary subapical

V-shape. Apex of elytron thickened, not ending in tooth (Fig. 228). In dorsal view tubercles on sides silhouetted along entire outline of elytra; tubercles rounded, not sharp in outline. Wing as in Diagnosis, without folds. Fore femur (Fig. 224) 1.3x wider than hind femur; more coarsely sculptured than in impressicollis female; flange obsolete. Fore tibia with 10 minute teeth on inner edge. Mesepimeron as in Diagnosis and Fig. 226; paler than surrounding integument, with about 10 extremely small setae. Metasternum short, 1.7 mm long at suture with metepisternum, sculptured as in impressicollis female, its antero-lateral edge forming a raised lip over adjacent mesosternum. Abdomen similar to that of institulus; ventrite 5 (Fig. 230) 1.6x wider than long; apex with a few deep punctures. Genitalia as in Fig. 344. Spermatheca with cornu and ramus bent at an angle; spermathecal duct 2 mm long; end of duct within bursa copulatrix without obvious plate.

Type Series.-Holotype, 282, Baly, Bowring Coll. (London).

Remarks.-Although the castaneous color suggests a teneral condition, the dark spermatheca indicates a mature specimen. The slender, protuberant mesepimeron, the short metasternum, the triangular apical half of elytra without an umbone, and the relatively narrow and oblique base of the elytra, although not extreme, are all attributes of a flightless species. The meso- and metathorax of bombycinus (Fig. 225) illustrate the typical appearance of these structures in a fully winged species. The edge of the apex of the elytra lacks the denticles typical of Hadrorestes, but this condition prevails in all three flightless species - see Remarks on striatus.

The few broader scales on the elytra suggest that a pattern may sometimes occur in this species. The absence of long, wispy setae on the dorsal surface may be of diagnostic value. The minute teeth on the fore tibia may also prove to be diagnostic.

Within the impressicollis group the male of this species should be distinguishable by the sculpture of the rostrum and prothorax, possibly also by a protuberant mesepimeron and color.

H. brachypterus lacks several characteristics of the impressicollis group: the long, wispy setae of the elytra and sides and dorsum of the prothorax are absent, the edge of the apex of the elytra is without denticles, and the usual depressions of the pronotum are weak. I interpret this to be a secondary loss in a highly derived species since the sculpture of the tibiae, densely squamose scutellum, and dense patches of elongate scales at diagnostic spots on the ventral surface are all well-developed group characteristics.

The transandinus Group

37. transandinus n. sp.
38. nanus n. sp.
39. apicalis n. sp.

Characteristics of Group.-Small, elongate species, 7.6-11.2 mm in length. Epistoma wide, rostrum moderately short. Mandible without a groove on dorsal surface, one or two dorsal setae set in a large puncture. Eye large. Prothorax with strong basal and apical constrictions, median line distinctly to conspicuously depressed; sides of prothorax with sharp tubercles. Scutellum with long whitish seta-like vestiture. Postocular vibrissae well developed. Elytra long, slender, 3.0-4.5x longer than prothorax; flat in lateral view; strial punctures very large. Fore femur not greatly enlarged, posterior face of fore femur of male smooth (male of apicalis not known). Ventrite 5 of female without lateral depression but may be flattened (female of nanus not known). Proximal end of internal sclerite of internal sac strongly reflexed (Figs. 320-323). Apex of internal sac directed dorsally or distally. Female with flat sclerite at junction of spermathecal duct within bursa copulatrix.

Remarks.-These three species, closely related to each other, occur in a transverse band across northern Ecuador. Unfortunately, both sexes are known for only transandinus and until both sexes are available for all three species, they must be considered incompletely diagnosed.

Of the two species represented by males, one has the apex of the internal sac curved and dorsally directed (transandinus, Fig. 323) and one has the apex straight and distally directed (nanus, Fig. 321). The latter is more likely a reduction from a dorsally directed apex (as in transandinus) than intermediate between the distally directed apex as in impressicollis and exilis. See Remarks, nanus. The transandinus group, therefore, apparently derived from a common ancestor with a pectinatus group species.

37. Hadromeropsis (Hadrorestes) transandinus n. sp.

Figs. 33, 231-234, 305, 322, 323, 343; Map 10

Diagnosis.-Prothorax of male (Fig. 234) with strong basal and apical constrictions and median line deeply impressed, the latter forming a "Y" with apical constriction. Elytra with vague to distinct flattened area behind scutellum. Elytra of female in profile (Figs. 231, 232) with summit of declivity distinct, apex attenuate into a conspicuous tooth distinctly ventrad of apical umbone. Spiculate apex of internal sac curved and directed dorsally (Fig. 323).

Description.-Holotype, male, length 9.0 mm, width 3.0 mm. Black, shiny; with small greenish white scales. Scales of head, rostrum, and prothorax very sparse, confined to protected areas as around eye and sides of basal constriction of prothorax. Most scales of elytra in irregular transverse depressions. Head and rostrum very smooth, polished, with only a few minute punctures. Rostrum with median line finely, deeply impressed from between posterior edge of eyes to about middle, sides rather strongly rounded and deflected to median line. Segment 2 of funicle slightly longer than segment 1. Prothorax as in Diagnosis and Fig. 234; 1.05x wider than long, sides only weakly rounded between constrictions; lateral tubercles acute in dorsal view. Pronotum with an area on side somewhat flattened and with sculpture weaker. Elytra across humeri 1.4x wider than prothorax, elytra 3.2x longer than prothorax. In dorsal view (Fig. 33) sides of elytra parallel for basal 0.5 thence very gradually convergent to apex, apical umbone not prominent, just touching outline, apices very briefly individually rounded. Dorsal outline with obsolete tubercles on basal 0.2, on apical 0.3 with small, sharp tubercles followed by denticles on edge of apex. Base of stria 5 and postscutellar area weakly depressed; apparently without long setae. Sculpture of elytra similar to Figs. 231, 232 of female; intervals with fine setae each about as long as adjacent strial puncture, setae becoming longer, erect apicad and laterad. Fore femur 1.9x wider than hind femur; 1.5x wider than rostrum; surface very smooth and polished except weakly sculptured distally; set with fine, erect white setae. Fore tibia straight; faintly punctulate; inner edge with 10 equidistant teeth, the central 3 teeth slightly larger; with numerous erect straight or curved fine dark setae. Middle and hind tibiae with bristles of inner edge obsolete. Ventrite 5 approximately 2x wider than long, slightly convex, apex truncate-emarginate. Genitalia of paratypes as in Figs. 322, 323; aedeagus 2.8 mm long.

Allotype, female (Fig. 231), length 10.6 mm, width 3.8 mm. Differs from type as follows. Antenna, mandible, epistoma and legs in part reddish yellow. Scales and some setae (especially on hind coxa and scutellum) iridescent green. Head and rostrum (Fig. 233) more strongly punctured, rostrum with some punctures coalescing into brief rugae. Prothorax 1.09x wider than long; median line not impressed, disc instead rather broadly flattened medially with confluent tubercles; lateral flattened area scarcely evident. Elytra across humeri 1.5x wider than prothorax; elytra 3.9x longer than prothorax, elytra 2.4x longer than width across humeri. In dorsal view sides slightly divergent to middle thence very gradually convergent to apex, apical umbone weakly arcuate in outline; profile as in Diagnosis, Fig. 232. Strial punctures smaller, striae more confused apically by tubercles; summit of declivity with 4 long setae. Fore femur 1.2x wider than hind femur, sculpture more pronounced. Fore tibial teeth uniform in size. Fore tarsi longer (Fig. 305). Middle and hind tibiae with 5 to 8 stout bristles on inner edge. Caudal surface of ventrites 2, 3, and 4 equal in height, slightly anteriorly directed, the edge rounded medially. Ventrite 5 across base 1.4x wider than long; entire segment slightly convex. Genitalia as in Fig. 343; spermathecal duct approximately 2.2 mm long.

Type Series.-Holotype, ECUADOR, Pichincha, 10 km E Tandapi, 2000 m, 11.VI.1976, S & J Peck, beating vegetation (Howden). Allotype, ECUADOR, Napo, 2 km S. Oritoyacu, 22 km S Baeza, 1500 m, III.4-5.1976, J M Campbell (Howden). Paratypes, 3 males. ECUADOR. Pichincha: 2 males, same data as type (Ottawa, Howden); 1 male, Quito, Coll. Kuschel (Auckland).

Note: Tandapi appears as Cornejo Astorga on recent maps.

Remarks.-The paratypes are 8.5-10.5 mm in length and 2.8-3.4 mm in width. They vary from the type as follows. Rostrum with a few brief rugae. Prothorax with sides more strongly rounded in some, 1.01-1.08x wider than long. Elytra 3.0-3.5x longer than prothorax, apical umbone arcuate in dorsal outline.

The name transandinus refers to the fact that the species is known from both the Pacific and Amazonian slopes of the Andes.

38. Hadromeropsis (Hadrorestes) nanus n. sp.

Figs. 238, 320, 321; Map 10

Diagnosis.-Based on unique male. Very small. Base of elytra evenly convex in scutellar area. Fore femur slender, approximately as wide as rostrum. Endophallic structures large, larger than in transandinus; spiculate apex short, straight (Fig. 321).

Description.-Holotype, male, length 7.6 mm, width 2.5 mm. shiny black; antenna, epistoma, mandible and legs reddish yellow. Sparsely set with round scales of slightly iridescent pale blue or whitish; scales more numerous than in transandinus, on ventral surface almost as numerous as on dorsum, occurring even on fore coxa and base of fore femur. Head and rostrum (Fig. 238) sparsely punctate, median line finely impressed from frontal fovea to anterior edge of eye, entire rostrum longitudinally concave. Segment 2 of funicle 1.4x longer than segment 1. Prothorax (Fig. 238) 1.09x wider than long, similar to that of transandinus. Elytra cylindrical, as in Diagnosis. Elytra across humeri 1.3x wider than prothorax, elytra 3.6x longer than prothorax, elytra 2.4x longer than width across humeri. In dorsal view sides of elytra parallel on basal 0.13, feebly rounded, thence very slightly convergent to apical umbone, apex broadly rounded from between striae 5, apices briefly divergent. Dorsal outline with no tubercles from base to apical 0.3, thence with small, acute tubercles similar to denticles of apical edge of elytra. Stria 5 weakly depressed at base. Base of elytra with several rows of long, wispy setae. Sculpture of elytra, strial punctures similar to those of transandinus, striae more confused by more numerous squamose depressions. Setae of lateral intervals longer, more conspicuous, especially on declivity. Fore femur 1.3x wider than hind femur, as wide as full width of rostrum; distal flange very weak; sculpture of femur obsolete; setae of femur very conspicuous, long, white, erect. Fore tibia weakly bowed distally, obsoletely punctate, inner edge with 8 or 9 very small, uniform teeth; with numerous long, curved and some long, straight erect setae. Middle tibia with row of 4 or 5, hind tibia with 2 or 3 bristles on inner edge. Ventrite 5 across base 1.7x wider than long, slightly convex, apex truncate-emarginate. Last tergite with inflexed apex (lip) short. Genitalia as in Figs. 320, 321, and Diagnosis; aedeagus 2.4 mm long.

Type Series.-Holotype, ECUADOR, Pichincha, km 27, Old Santo Domingo Rd, 3200 m, 18.II.1979, H. Howden, on alder (Howden).

Remarks.-The erect setae of the fore legs are particularly conspicuous, as are the long, wispy setae of the base of the elytra; on older specimens, they would be less conspicuous from wear.

Because of the extremely small size and delicate proportions of the type specimen, the narrow fore femur might be attributed to allometric growth. However, allometric growth could not account for the convex base of the elytra nor the large, very distinctive endophallic structure. The short, straight, distally directed apex of the internal sac is apparently a reduction from a dorsally directed form since the internal sclerite is very large and strongly reflexed proximally.

In addition to the diagnostic characters listed, nanus differs from transandinus in the setae at the base of the elytra numerous and long, teeth of the fore tibia very fine and uniform, and the elytra more cylindrical in caudal view.

Since nanus shares many characters with apicalis, including a more dorsal apex of elytra and similar habitat in Ecuador, the suspicion exists that they may be male and female of the same species. However, from the evidence on hand, I feel they are separate taxa. The base of the elytra at the scutellum is so completely convex in nanus that it is unlikely to be depressed in the opposite sex.

39. Hadromeropsis (Hadrorestes) apicalis n. sp.

Figs. 30, 235-237, 345; Map 10

Diagnosis.-Based on female only. Similar to female of transandinus, but with a pronounced aeneous lustre; elytral declivity very brief, attenuate apex of elytra in lateral view thus close to dorsal surface; elytral 4.0-4.5x longer than prothorax.

Description.-Holotype, female, length 11.2 mm, width 3.6 mm. Shiny black with aeneous lustre; femora, antenna, mandible, and epistoma piceous. Sparsely clothed with off-white or pale greenish scales of small size. Head and rostrum as in transandinus female. Prothorax as in Fig. 236; 1.1x wider than long; sides moderately rounded between constrictions; basal constriction narrow, complete dorsally; apical constriction obsolete on disc. Pronotum flattened along median line, here irregularly transversely sculptured; either side of this area punctate, almost smooth, gradually changing to distinct, discrete tubercles on vertical sides. Elytra (Fig. 30) across humeri 1.5x wider than prothorax, elytra 4.0x longer than prothorax. In dorsal view humeri very prominent, sides subparallel for basal 0.3, thence broadly rounded to apical umbone, the umbone weak; sides of apex slightly sinuate from beneath stria 4; apices briefly attenuate, slightly inwardly directed. Ventrally (Fig. 237) apical attenuation expanded beyond border of elytra which remains parallel to stria 10. Dorsal outline with small tubercles on basal 0.25, conspicuous tubercles on apical 0.5. Base of stria 5 impressed; with distinct postscutellar flattened area; with some moderately long, tapered setae. Setae of intervals becoming longer toward sides and apex. Fore femur 1.2x wider than hind femur; fore femur with moderate flange, its edge weakly serrulate; weakly sculptured with faintly impressed honeycomb lines changing to impressed longitudinal lines distally. Fore tibia straight with 11-13 small teeth; outer edge sparsely punctate. Middle and hind tibiae with 5-8 stout bristles on inner edge. Caudal surface of ventrites 2, 3, and 4 equal in height, slightly anteriorly directed. Ventrite 5 (Fig. 237) across base 1.5x wider than long. Genitalia as in Fig. 345; spermathecal duct 2.0 mm long.

Type Series.-Holotype, ECUADOR, Napo, 4 km W Papallacta, 3200 m, III.2.76, J. M. Campbell (Howden). Paratype, 1 female, ECUADOR, Chimborazo et Pichincha, Mandeville, 272, 1853 (Paris).

Remarks.-The paratype is 11 mm long and 4.2 mm wide. It differs from the type in the following respects. Sculpture of head (Fig. 235) more complex. Prothorax almost uniformly tuberculate. Elytra across humeri 1.2x wider than prothorax, elytra 4.5x longer than prothorax, elytra 2.5x longer than width across humeri. Elytra in profile slightly concave medially. Apex much more developed; sutural interval at summit of declivity with 2 or 3 long setae (these abraded in type). Metasternum and ventrites 1 and 2 with a fine microsculpture of parallel, transversely impressed lines.

The flared and attenuate apex of the elytra (Fig. 237), for which the species is named, is of a different origin than that of *institulus* (Fig. 218) in which the margin is simply crimped outwardly, stria 10 following the margin closely.

In addition to the diagnostic characters, *apicalis* differs from *transandinus* in the very prominent humeri and the more conspicuous tubercles of the elytra in dorsal outline. *H. apicalis* occurs at a much higher elevation than *transandinus*, its range bisecting the lower-elevation range of *transandinus*. *H. nanus* occurs in a habitat similar to that of *apicalis*; *see* Remarks of that species.

The *pectinatus* Group

40. *dialeucus* n. sp.
41. *contractus* n. sp.
42. *pectinatus* n. sp.
43. *conquisitus* n. sp.
44. *scambus* n. sp.
45. *magicus* (Pascoe)
46. *nitidus* n. sp.
47. *mandibularis* n. sp.
48. *spiculatus* n. sp.

Characteristics of Group.-Proximal end of internal sclerite within internal sac strongly reflexed (Figs. 324-328). Apex of internal sac produced in a curved, dorsally directed, short to greatly elongated cone or tube. Dorsal surface of internal sac above proximal end of heavy internal sclerite without a cupped inflatable lobe. Junction of spermathecal duct inside bursa copulatrix unmarked or with a faint small sclerite.

Remarks.-The species are arranged here according to the length of the apex of the internal sac and spermathecal duct. It then becomes evident that the species are similarly related in other features as well.

Both sexes are known for six of the nine species.

In addition to the obvious similarities in the male genitalia, the sculpture on the posterior face of the fore femur of the male shows a close relationship between *impressicollis* and the first few species in this group. In these species the distal tubercles are grossly enlarged into a shelf, the large seta-bearing surface flat or concave and abruptly perpendicular to the surface of the femur. A lesser development of these shelf-like tubercles is seen in the lower right corner of Fig. 257.

In the remaining species there is a trend for the overall sculpture of the beetle to gradually decrease as the genitalia becomes more extreme.

40. Hadromeropsis (Hadrorestes) dialeucus n. sp.

Figs. 28, 279, 281, 307, 324, 325, 355

Diagnosis.-Female elytra clothed (a) with small to minute scales clustered in irregular transverse depressions; (b) sometimes also patterned with basal oval ring, median fascia, and apical lunule of white scales of varying sizes (Fig. 28), or with fragments of this pattern; or, (c) with pattern of (b) but remainder of elytra densely covered with ochraceous, sometimes imbricate, larger (0.1 mm) scales. Prothorax (Fig. 281) with rounded tubercles of sides obsolete or completely absent on disc, disc almost smooth and shiny in some. Elytra of female with sides very gradually rounded to apex from about middle. Posterior half of hind coxa covered with rounded, separated, moderate-sized, whitish or ochraceous scales. Male with internal sac similar to that of pectinatus but apex lacking the pair of sclerotized dorsal lobes (Fig. 325).

Description.-Holotype, male, length 11.0 mm, width 3.8 mm. Reddish except head and base of elytra black. Appearing glabrous macroscopically; body dorsally and ventrally with minute, round, oval, or elongate white scales (visible in Figs. 279, 281); scales of posterior half of hind coxa as in Diagnosis, larger than any others but not full-sized. Head and rostrum similar to those of spiculatus in Fig. 288, with distinct scattered punctures, a few confluent punctures on rostrum forming brief rugae; median line briefly, finely impressed, with small frontal fovea. Funicle with segments 1 and 2 equal in length. Prothorax 1.1x wider than long, sides moderately rounded, widest behind middle. Pronotum with median line distinctly impressed basally, disappearing before apex; sculpture otherwise as in Diagnosis; setae as in pectinatus. Elytra across humeri 1.3x wider than prothorax; elytra 3.0x longer than prothorax. Elytra shaped as in pectinatus except apex less truncate. Elytral striae and sculpture similar to that of pectinatus but striae more distinct, intervals smoother, tubercles at base of elytra weaker. Fore femur 2.1x wider than hind femur; posterior face with about 17 shelf-like tubercles, these weaker than in pectinatus; sculpture of fore femur and tibia otherwise similar to that of pectinatus. Inner edge of fore tibia with 10 or 12 nearly uniform short teeth. Fore tarsus (Fig. 307) similar to that of pectinatus but shorter. Middle and hind tibiae without tubercles, with 1 or 2 stout bristles. Abdomen with punctures obsolete except on apical half of ventrite 5; ventrite 5 across base 2.2x wider than long. Aedeagus (Fig. 324) 3.1 mm long, aedeagal apodeme 1.5 mm, tegminal strut 1.8 mm. Internal sac as in Diagnosis, Fig. 325.

Allotype, female, length 12.3 mm, width 5.0 mm. Differs from type as follows. Most of integument black, legs and antenna reddish. Scales more numerous on both dorsal and ventral surfaces; elytra patterned as in Fig. 28 and Diagnosis, but some scales abraded, pattern recognizable by scars. Pronotum smoother (Fig. 281). Elytra across humeri 1.5x wider than prothorax; elytra 3.6x longer than prothorax. In dorsal view (Fig. 28) sides of elytra very slightly divergent to about middle where they are only 1.2x wider than across humeri, very gradually convergent to apex (Fig. 279), apical umbone weak, just touching dorsal outline. Sutural interval produced into very brief, caudally projecting tooth. In profile elytra more convex basally, gradually curved to summit of declivity which is scarcely perceptible, marked with 7-8 long, reddish setae. Fore femur 1.3x wider than hind femur; posterior face lacking shelf-like tubercles; teeth of fore tibia very small. Middle and hind tibiae with 1-3 strongly oblique bristles, no tubercles. Ventrites 3, 4, and 5 with rough sculpture at sides. Caudal surface of ventrites 2 and 3 moderate, smooth, shiny, anteriorly slanted; caudal surface of ventrite 4 almost perpendicular, moderate in height, straight in posterior view. Ventrite 5 across base 1.8x wider than long. Genitalia of paratypes as in Fig. 355; spermathecal duct 1.8 mm long.

Type Series.-Holotype, no data, green square of paper (Oxford). Allotype, VENEZUELA, Coll. C. Felsche, Kauf 20, 1918 (Dresden). Paratypes, 6 females. VENEZUELA. 1 female, same data as allotype (Dresden); 1 female, Coll. Kuschel (Auckland). No locality: 4 females, no data (Berlin, London, Howden).

Remarks.-Females vary in length from 11.3-12.5 mm and in width from 4.5-5.0 mm. In the maximum vestiture (one female) only the basal ring and median fascia are present; these markings conspicuous, glabrous (hence black) but with the center of the markings set with small, faintly opalescent scales; remainder of elytra and line on base of prothorax with larger (0.1 mm), often imbricate, pale ochraceous scales; head, rostrum, prothorax except basal line, elytral humerus, and legs with the smaller faintly opalescent scales; ventrally with ochraceous scales very sparse medially. The minute scales are definitely greenish on the elytral declivity in one female. Elytral setae are very slender, translucent brown or paler, up to 0.5 mm long on lateral intervals of elytra; slightly thicker and white on the sides of the prothorax and meso- and metasterna.

In addition to the diagnostic characters, *dialeucus* differs from *pectinatus* in the shorter aedeagus and the lack of tubercles on the middle tibia.

The name means "marked with white".

41. *Hadromeropsis* (*Hadrorestes*) *contractus* n. sp.

Figs. 37, 274-278, 354; Map 12

Diagnosis.-Based on female only. Elytral pattern as in Fig. 37. Ventrites 3, 4, and 5 much narrower than ventrites 1 and 2; adjacent elytral margins likewise convergent and attenuate. Caudal surface of ventrite 4 strongly produced in a high arc, strongly to moderately posteriorly slanted. Apical fourth of fore tibia abruptly bent inward.

Description.-Holotype, female, length 11.3 mm, width 4.3 mm. Integument shiny black except legs and antenna reddish. Dorsally sparsely but evenly clothed with small, round, pale greenish white scales in depressed areas. Elytra also with larger, round, white scales forming a faint basal arc, a median fascia and an apical lunule. All setae opaque white, longest on abdomen and metasternum, shortest on disc of elytra. Head and rostrum (Fig. 274) slightly concave, with punctures and some small depressions; median line finely impressed, frontal fovea obsolete. Funicle with segments 1 and 2 equal in length. Prothorax (Fig. 275) 1.1x wider than long; sides moderately rounded between constrictions; covered with low, round tubercles which become weaker medially; median line not marked; space between tubercles with scales. All setae of sides and disc of prothorax recumbent. Elytra across humeri 1.4x wider than prothorax; elytra 3.6x longer than prothorax. Elytra in dorsal view (Fig. 37) with sides slightly divergent to about middle thence convergent in straight line to apex, apical umbone interrupting this line in a conspicuous arc. Apex of elytra (Fig. 277) in dorsal view conspicuously narrow and attenuate, each elytron terminating in short tooth. Dorsal surface of elytra without long, wispy setae, without tubercles, basal portion of elytra with shallow, sinuous, transverse depressions; strial punctures deep, mostly regularly aligned except in white markings. Declivity and intervals 8, 9, and 10 with moderate to weak acute tubercles each with a short, white seta; tubercles obsolete on middle of sides. Fore femur (Fig. 276) 1.7x wider than hind femur; femur with fine netted microsculpture, distal portion of femur and all of fore tibia with deeply impressed parallel grooves; without long, wispy setae (possibly only a female characteristic), nowhere with tubercles, inner edge with very weak flange. Fore tibia as in Diagnosis and Fig. 276; with 11 small, equal equidistant teeth on inner edge. Middle tibia with 4, hind tibia with 1, strongly oblique bristles. Hind coxa with no scales, only white setae. Abdomen as in Diagnosis and Fig. 278. Ventrites 3, 4, and 5 with numerous, long, white setae; caudal surface of ventrites 2 and 3 finely rugulose; caudal surface of ventrite 4 smooth and shiny. Ventrite 5 only 1.4x wider than long, lateral concavities very deep and large. Genitalia of paratypes (including two examples of lateral sclerite) as in Fig. 354; no sclerite at junction of spermathecal duct with bursa copulatrix; spermathecal duct 1.6-1.9 mm long.

Type Series.-Holotype, female, BOLIVIA, Coroico, Ost Bolivien, 1913, 16 (Dresden). Paratypes, 2 females, BOLIVIA, Coroico, Ex. coll. Clerc (Paris).

Remarks.-The two paratypes are 11.4-12.4 mm long and 4.5-4.7 mm wide. They differ from the type in having the median line of the pronotum marked by an obsolete or partial impression, the apical umbone of the elytra less prominent, the elytra more strongly sculptured, and the striae consequently less distinct.

Superficially contractus resembles dialeucus but the conspicuously narrowed, attenuate apex of the elytra, the more strongly sculptured prothorax, and the non-squamose hind coxa readily distinguishes contractus. Series of both sexes of both species are needed to establish inter- and intraspecific variation.

This species is perhaps most closely related to pectinatus, the female of which differs in the broader, more gradually narrowed abdomen; more erect, longer, and more slender setae of intervals 8, 9, and 10 and declivity; more distinct declivity; absence of large scales dorsally; more strongly sculptured caudal surface of ventrites 2 and 3; less arcuate caudal margin of ventrite 4; and less bowed fore tibia.

The name, contractus, refers to the contracted ventrites 3, 4, and

5.

42. Hadromeropsis (Hadrorestes) pectinatus n. sp.

Figs. 35, 265-270, 308, 328, 352; Map 13

Diagnosis.-Neither sex with full-sized scales either dorsally or ventrally. Prothorax (Fig. 266) with sculpture composed of very uniform, rounded tubercles evenly distributed over all, including (in male) the narrowly depressed median line. Female with sutural edges of elytra separated apicad of interlocking flange, produced into strongly convergent teeth (Fig. 268). Fore femur of male on its posterior face distally with 6 to 24 well-developed shelf-like tubercles each bearing a long, wispy seta in its saucer-like follicle. Fore tibia of male with 3 or more teeth of inner edge extremely long (Fig. 267).

Description.-Holotype, male, length 11.5 mm, width 4.1 mm. Black except antenna, prothorax and base of fore coxa and fore femur reddish; with minute blue scales scattered over dorsum and very sparsely over ventral surface, scales of prothorax elongate, others rounded. Head and rostrum (Fig. 265) dorsally and laterally with deep punctures, some elongate and confluent forming short rugae; frontal fovea small; median line weakly impressed. Rostrum narrow, dorsally shallowly concave, sides flared outward apicad of antennal insertion; dorso-lateral edges prominent. Funicle with segment 2 slightly longer than segment 1. Prothorax as in Diagnosis and Fig. 266. Prothorax 1.1x wider than long, sides strongly rounded between constrictions; each tubercle with a very slender white seta, setae shorter dorsally and towards median line; no long, wispy setae visible dorsally but some setae of basal constriction on sides less curved. Elytra (Fig. 35) across humeri 1.3x wider than prothorax; elytra 3.0x longer than prothorax. Elytra in dorsal view with sides parallel to just caudad of middle, thence gradually rounded to apex, apical umbone obsolete and not entering dorsal outline, apex truncate. Base of elytra not depressed at stria 5, weakly depressed behind scutellum, base of dorsal intervals with short row of tubercles; each tubercle bearing a fine, long, wispy straight or curved seta, additional setae present as well. All lateral intervals and entire declivity with numerous acute tubercles, entire dorsal outline of elytra "dentate" from the profile of these tubercles; each tubercle bearing a conspicuous, long, straight or weakly curved seta. Striae distinct centrally only, remainder of disc with short to long, transverse squamose depressions about half as deep as strial punctures, these transverse depressions shorter caudad and changing until before declivity each interval with series of tubercles extending the width of interval and each strial puncture separated by a small tubercle. Fore femur 2.2x wider than hind femur; anterior face with fine netted microsculpture which distally becomes deeply impressed parallel grooves with scattered deep punctures superimposed, each puncture bearing a long, wispy seta; inner edge of fore femur with very weak distal flange; inner surface including tibial groove with scattered tiny granules; posterior face as in Diagnosis. Fore tibia (Fig. 267) slightly curved with 10-12 slanting teeth on inner edge, the 3 distad of middle extremely long (badly worn in type); fore tibia densely sculptured with deep rugae and punctures. Fore tarsus with segment 1 long, parallel-sided (Fig. 308). Middle and hind tibiae with row of tubercles on inner edge, 2 or 3 most distal tubercles each with a stout bristle arising from base. Abdomen with very fine scattered punctures on ventrites 1 and 2, punctures larger and denser on ventrites 3-5, apex of ventrite 5 very broadly truncate-emarginate. Genitalia similar to Fig. 324 of dialeucus, aedeagus 4.0 mm long. Apex of internal sac (Fig. 328) with pair of distinct sclerotized lobes slightly dorso-laterally directed (marked with arrow in figure).

Allotype, female, length 12.3 mm, width 5.0 mm. Differs from type as follows. Only base of pronotum reddish; scales white. Rostrum wide; only briefly concave apically, sculpture of head and rostrum finer. Prothorax with sides less strongly rounded, tubercles weaker, median line not marked except by break in tubercles. Elytra across humeri 1.5x wider than prothorax, elytra 3.6x longer than prothorax. Elytra in dorsal view with sides gradually divergent to just beyond middle where they are 1.2x wider than across humeri, thence gradually rounded to apical umbone which is small but distinct in outline, apex approximately triangular. Sutural edges of elytra as in Diagnosis, Fig. 268. Declivity in profile slightly concave, sutural edge at summit of declivity with 4 very long setae. Fore femur 1.4x wider than hind femur; posterior face lacking shelf-like tubercles. Fore tibia on inner edge with 8 or 9 more erect teeth, the 3 distad of middle shorter than in type but longer than in males of many species. Base of ventrites 3, 4, and 5 with rather coarse microsculpture (Fig. 269). Caudal surface of ventrites 2 and 3 approximately perpendicular, coarsely sculptured (Fig. 270); caudal surface of ventrite 4 smooth, concave; edge medially straight, not as high as ventrites 2 and 3, directed caudad. Ventrite 5 across base 1.6x wider than long, strongly medially convex from basal fourth. Genitalia as in Fig. 352; spermathecal duct 2.6 mm long.

Type Series.-Holotype, PERU, Cuzco, Valle de Lares, 75 km NW Calca, 2060 m, 6 Feb. 1979, W. E. Steiner (Washington, USNM Type No. 100193). Allotype, same data as type except 13 Jan 1979 (Washington). Paratypes, 5 males. BOLIVIA: 1 male, Limbo-Chapare, 11.1952, 2000 m (Howden); 1 male, Yungas, Coll. Kuschel (Auckland). COLOMBIA. 2 males, F. C. Nicholas Collection (New York). PERU. Cuzco: 1 male, same data as type (Howden).

Remarks.-The paratypes (all males) range in length from 11.2-14.6 mm and in width from 2.7-5.0 mm. The paratypes exhibit both deeper and shallower rostral sculpture than the type. The Colombian specimens differ in the elytral striae more distinct, even on the declivity. Variation in the number of shelf-like tubercles on the posterior face of the fore femur is apparently related to development of the specimen and not to geographical range. For instance, in the 11.9 mm specimen from Bolivia there are 7-12 shelf-like tubercles whereas in the 14.6 mm specimen from Bolivia there are 24 shelf-like tubercles. The hind tibia usually has a single groove on the outer edge, but it can vary from one side of the beetle to the other. In all the males there is a trace of the strong microsculpture of the female abdomen. The aedeagus ranges from 3.8-4.5 mm long in the paratypes, but the apex of the internal sac is very uniform.

When looking at mixed species, the very uniform sculpture of the pronotum and the extremely long teeth of the fore tibia are particularly conspicuous.

There are two females from Cochabamba, Bolivia, in the Kuschel collection (Auckland) that may be pectinatus. They are clothed dorsally and ventrally with small (0.06 mm) round, blue-green, slightly iridescent scales which are concentrated in depressed areas on the prothorax and elytra, absent medially on the abdomen. The thoracic sculpture is considerably weaker than in the type series and the tibial teeth are uniform. Association with males is required to establish the identity of these specimens.

The specimens from Peru were part of a small group of specimens on a legume-like small tree; the remainder of the group dropped when the collector approached and were not recovered.

The comb of long teeth of the fore tibia suggested the name "pectinatus".

43. Hadromeropsis (Hadrorestes) conquisitus n. sp.

Figs. 34, 254-259, 329, 330, 350; Map 12

Diagnosis.-Glabrous or sparsely clothed with scintillating iridescent green scales. Segment 2 of funicle much longer than segment 1. Apical umbone of elytra protuberant, set with acute, caudally directed tubercles (Figs. 34, 254). Fore femur of male (Figs. 257, 258) with well-developed flange on inner edge distally, with sharp tubercles on the flange, rounded tubercles on inner surface except tibial groove. Fore tibia both sexes almost smooth with very few scattered small punctures; with a few fine, pale, recumbent setae; fore tibia distally absolutely straight in female and less-developed in males, slightly bowed in well-developed males (Fig. 258). Internal sac of male at extreme apex without 4 inflatable lobes (Fig. 330).

Description.-Holotype, male, length 13.4 mm, width 4.2 mm. Black; sparsely clothed in depressed areas with minute green scales. All dorsal setae very fine and inconspicuous, white, curved. Head and rostrum with strong median concavity extending to between middle of eyes; median line finely impressed between apical half of eyes; dorso-lateral edges of rostrum prominent, rounded, smooth and shiny. Head and sides of rostrum weakly sculptured with punctures; confluent punctures or brief rugae on frons. Segment 2 of funicle 1.6x longer than segment 1. Prothorax (Fig. 255) as wide as long, sides almost parallel, slightly swollen over fore coxae. Prothorax with sculpture composed of rounded tubercles, medially tubercles slightly larger and some confluent; median line finely, partially impressed, crooked. In profile, pronotum almost flat, except immediately before basal constriction; basal constriction very short on disc. Elytra across humeri 1.3x wider than across prothorax, elytra 3.0x longer than prothorax. In dorsal outline sides of elytra slightly convergent from humeri, more strongly so from apical third, umbone right-angled, apex rounded. In dorsal view tubercles of lateral intervals acute on basal third, absent medially, prominent and acute on umbone; teeth of apical edge of elytra prominent, even; apices of elytra not at all produced. Base of elytra depressed at stria 5; elytra moderately concave behind scutellum. Elytra irregularly sculptured with rounded tubercles across base; tubercles reduced, becoming confluent on outer intervals of disc, before declivity becoming low swellings strongly caudally directed, as wide as interval; much smaller on declivity. Striae 1, 2, and 3 regularly punctate on disc; other striae confused by sculpture and extra punctures. Fore femur as in Diagnosis and Figs. 257, 258; enormously swollen, 2.7x wider than hind femur. Inner surface of fore femur with multiple shiny, small round tubercles except in smooth tibial groove, each tubercle with long, wispy seta; remaining surfaces of fore femur proximally very finely sculptured, with only white or greenish, short recumbent setae; posterior surface strigulate distally. Fore tibia as in Diagnosis and Fig. 258; inner edge with multiple rounded tubercles and long, wispy setae. Fore tarsus with segment 1 long and parallel-sided, segments 2 and 3 subequal in length, 0.8 as long as segment 1. Middle and hind tibiae with row of 4-7 tubercles on inner surface near edge, a stout bristle arising from base of each. Abdomen smooth and shiny, almost impunctate; ventrite 5 across base 2.0x wider than long, apex broadly truncate-emarginate. Genitalia as in Figs. 329, 330, and Diagnosis.

Allotype, female, length 13.1 mm, width 5.0 mm. Differs from type as follows. Clothed on dorsal and ventral surfaces and legs with scintillating green scales; black integument shining through naturally (i.e., not abraded) on dorso-lateral edges of rostrum and on elytra forming pattern (Fig. 34) of a black "S" basally and an oblique preapical fascia. Scales sparse on disc of pronotum which consequently appears darker. Prothorax slightly wider than long, sculpture slightly weaker. Elytra across humeri 1.4x wider than across prothorax, elytra 3.4x longer than prothorax. Elytra in dorsal view widest just caudad of middle; apex beyond umbone more elongate; apices individually attenuate into conspicuous tooth. Sutural interval at summit of declivity with 3 and 4 long, erect setae. Fore femur 1.4x wider than hind femur, distal flange greatly reduced but still evident and its edge denticulate; remaining tubercles obsolete or absent. Fore tibia with single row of teeth instead of tubercles. Abdomen with very faint microsculpture similar to that of pectinatus. Caudal surface of ventrites 2, 3, and 4 approximately perpendicular, smooth and shiny. Ventrite 5 across base 1.6x wider than long. Genitalia as in Fig. 350; spermathecal duct of allotype and paratypes 2.4-3.0 mm.

Type Series.-Holotype, ECUADOR [Zamora-Chinchipe], Sabanilla, 15.IX.-7.X.1905, Dr. Ohaus, 1, 1907 (Dresden). Allotype, same data as type (Dresden). Paratypes, 2 males, 3 females. ECUADOR. 1 female, 52286, Buckley, Fry Coll. 1905-100 (London); 2 males, 1 female [Morona-Santiago], Macas, Buckley (Berlin [1 female]; Fry Coll. 1905-100, London [2 males]); 1 female, same data as type (Dresden).

Remarks.-Both male paratypes are 12.1 mm long, 3.8 mm wide; the three females are 14.0-15.3 mm long, 5.2-5.8 mm wide. The two males are clothed with full-sized scales and are patterned with glabrous lines as in the allotype, but the scales appear to be less dense than in the squamose females. One female is almost glabrous, bearing minute scales (as in the holotype) on the declivity only, the hind coxae having larger elongate green scales. Funicular segment 2 is always much longer than segment 1, ranging from 1.2-1.7x longer in females, and 1.6x in all three males. The prothoracic sculpture is weaker in the squamose paratypes (Fig. 256). The elytral tubercles are much less developed in one male. The sutural interval on the summit of the declivity is abraded in all males, they may or may not have one or two slightly longer setae there; in females 2-8 setae are present. The fore femur is always enormously swollen in males, ranging from 2.4-2.7x wider than the hind femur, and only 1.4-1.7x wider in the females.

Three females were dissected; in one (the allotype) the spermathecal duct ends in the bursa copulatrix in a distinct spherical dark bulb. In the second a separate sclerite is seen beneath the duct near its end within the bursa. In the third a portion of the end of the duct within the bursa is enlarged and dark.

One of the male paratypes is an old, worn specimen missing its abdomen; the other is teneral with the aedeagus very callow and I was not successful in extracting the internal sac from it. This is especially unfortunate in view of the slight difference noted between this species and *scambus* in the apex of the internal sac.

The prominent elytral umbone and characters of the fore legs will readily distinguish this species. In addition, glabrous specimens can be distinguished from many species the same size by the absence of long free-standing setae on the elytra. The squamose specimens are especially distinctive and can be confused only with *scambus*. See discussion of *scambus* for further comparisons.

Buckley at Macas and Ohaus at Sabanilla collected the entire type series. The name *conquisitus* means "sought out eagerly" and refers to the efforts of these two early collectors.

44. *Hadromeropsis* (*Hadrorestes*) *scambus* n. sp.

Figs. 32, 260-264, 326, 351; Map 13

Diagnosis.-Similar to *conquisitus* but segment 2 of funicle subequal to segment 1; fore tibia with deep confluent punctures and curved dark, wiry setae; and fore tibia distally strongly bowed. Fore femur of male with distal flange very weak, without tubercles except minute ones on flange, no modification below tibial groove. Internal sac of male at extreme apex with circle of 4 equal, equidistant inflatable lobes (Fig. 326).

Description.-Holotype, male, length 9.9 mm, width 3.1 mm. Head and prothorax black, remainder of body shading to piceous. Sparsely clothed with minute, scintillating green scales except on legs. All dorsal setae very fine and inconspicuous; recumbent, less so on declivity. Head and rostrum similar to *conquisitus* but median concavity shallower, median line finely impressed to behind eye. Segment 2 of funicle 1.1x longer than segment 1. Prothorax 1.04x wider than long, similar to *conquisitus*. Elytra across humeri 1.3x wider than prothorax, elytra 2.6x longer than prothorax. In dorsal outline sides of elytra subparallel, gradually converging caudad of middle, apical umbone weak in outline, apex brief, rounded (Fig. 261).

In dorsal outline tubercles of lateral intervals obsolete or absent on basal 0.7, small but distinct on apical 0.3, those of umbone small (Fig. 261), same size as those of declivity and edge of elytra. Base of elytra at stria 5 and postscutellar area only obsoletely depressed. Base of elytra without tubercles; strial punctures completely regular, with only minimal confusion on declivity. Fore tibia and femur as in Diagnosis and similar to Fig. 262 of female; fore femur 2.2x wider than hind femur; distal half with wiry setae as on tibia. Fore tarsus as in *conquisitus*. Middle and hind tibiae with bristle-bearing tubercles much less developed than in *conquisitus*. Abdomen relatively longer and narrower than in *conquisitus*, ventrite 5 across base 1.8x wider than long; apex of ventrite 5 emarginate. Genitalia as in Fig. 326 and Diagnosis. Aedeagus 3.15 mm long.

Allotype, female, length 12.8 mm, width 3.0 mm. Differs from type as follows. Rostrum more robust (Fig. 263). Prothorax more robust, 1.1x wider than long, disc flat, not at all depressed; in profile basally much thicker (Fig. 264); setae larger, especially on sides. Elytra across humeri 1.4x wider than prothorax, elytra 3.4x longer than prothorax. In dorsal view (Fig. 32) sides of elytra slightly wider at middle, gradually narrowed to apex, apical umbone rounded in outline, apex almost triangular, individual apices not at all toothed. With weak tubercles on apical portion of intervals 5, 6, and 7 and on umbone (Fig. 260). Setae of intervals 9 and 10 much longer on apical half of elytra; summit of declivity with 4-6 long setae. Fore femur 1.5x wider than hind femur. Caudal surface of ventrite 2 distinctly anteriorly arcuate, of ventrite 3 less arcuate, of ventrite 4 almost perpendicular; caudal surface of all smooth and shiny. Ventrite 5 across base 1.5x wider than long. Genitalia as in Fig. 351; lateral sclerite divided into 2 separate pieces; spermathecal duct slightly thicker just before and throughout bursa; duct broken, more than 1.5 mm long.

Type Series.-Holotype, ECUADOR [Zamora-Chinchipe], Sabanilla, 15.IX.-2.X,05; 1.1907, Dr. Ohaus (Dresden). Allotype, same data as type (Dresden). Paratype, 1 female, Sarayacu*, Pascoe Coll. 93-60 (London).

*No country given. It is uncertain whether this is the Ecuadorian Sarayacu where Buckley collected (Brown, 1941:846) or the Peruvian Sarayacu from which Kirsch (1873:124) described material in the Abendroth collection.

Remarks.-The paratype is 13.0 mm long, 5.0 mm wide. It is clothed with full-sized scintillating green scales much as in *conquisitus* except the sinuous black vitta of the elytra is continuous from the base to the suture at the summit of the declivity, and there is an additional brief arcuate vitta on the basal third. The paratype has the rostrum intermediate in width between the type and allotype; the setae are more like those of the male.

This species and *conquisitus* bear the same type locality labels of Sabanilla, but given the general nature of the labels could, in fact, be from quite different habitats. Dr. Ohaus (1908:387) briefly describes his stay in the area at about 1900 m altitude, 4 hours above Zamora, 2 days' journey from Loja.

The two species are very close, and I interpret the circle of 4 apical lobes on the internal sac of *scambus* as indicating this to be the more derived species.

The word scambus means bow-legged and refers to the strongly bowed fore tibia, a character readily distinguishing this species from conquisitus.

45. Hadromeropsis (Hadrorestes) magicus (Pascoe)

Figs. 36, 249-253, 301, 331, 332, 347; Map 12

Naupactus magicus Pascoe, 1881:41:-42. Type, unique female, labelled "Type," "Brazil" on ellipse of pink paper, "Naupactus magicus Type Pasc," "Pascoe Coll. B.M. 1893. 60" (London).

Hadromerus magicus (Pascoe); Kuschel, 1955:278.

Diagnosis.-Black; elytra smooth and shiny without tubercles except a few on declivity. Male sharply marked with three conspicuous white spots on each elytron (Fig. 36), female sharply marked with vittate pattern. In male elytral interval 10 opposite metasternum much wider than adjacent interval 9, smooth; in female more nearly equal, squamose. Mesepisternum with dense cluster of large white scales.

Description.-Male, length 10.4-10.8 mm, width 3.7 mm. Female, length 12.3 mm, width 4.8 mm. Mostly glabrous; marked with large, shiny white scales as follows. Scattered scales around epistoma. Male (Figs. 36, 251) elytra with spots on base of interval 4, on intervals 4-7 just before middle, and on intervals 3-6 at apical umbone. Female with markings on head and prothorax as in Fig. 249, elytral markings as in Fig. 252. Female sharply vittate; a vitta on interval 2 from base to summit of declivity; a vitta from anterior edge of eye continuing along side of prothorax and continuing on elytral interval 4 to its apex; this vitta crossing to interval 6 at basal 0.3 continuing thence in broad vitta, at apical 0.3 gradually curving to stria 1 at summit of declivity, interrupted only by a round black spot from striae 5-7 on apical 0.3. Both sexes ventrally with similar large white scales aggregated on mesepisternum and scattered on sides of metasternum, and in front of fore and hind coxae. Head and rostrum punctate, more sparsely so in female; dorso-lateral edges of rostrum slightly divergent distally, median line finely impressed between eyes; rostrum moderately concave. Epistoma occupying approximately 0.4-0.5 of anterior edge of rostrum in male, 0.3 in female. Mandible with transverse groove shallow, broad, well-defined; weaker in male. Segment 1 of funicle 0.6-0.8x as long as segment 2. Prothorax of male 1.06x wider than long, sides moderately to strongly rounded between constrictions; prothorax of female as in Fig. 249, 1.1x wider than long. Disc of pronotum almost flat in profile, median line obsoletely impressed; disc of male smooth or with a sculpture of indistinct punctures and confluent low tubercles, changing to uniform, low tubercles on sides, each tubercle with slender white decumbent seta; a few setae more erect on sides of constrictions. Scutellum densely clothed with white hair-like scales; female with one scale in addition. Elytra across humeri 1.3x wider than prothorax in male, 1.5x in female; 3.0x longer than prothorax in male, 3.7x in female. In dorsal view sides of elytra of male (Fig. 36) subparallel to middle thence very gradually rounded to apex; apical umbone very weak and just touching outline; apices briefly individually rounded. Elytra of female wider just caudad of middle, apical umbone as in male; declivity (Fig. 253) slightly concave between suture and apical umbone, the transverse apical portion of interval 9 glabrous, prominent and with a few small tubercles; sutural interval terminating in tooth. Elytra with sculpture and interval 10 as in Diagnosis and Figs. 251, 252. Base of elytra not depressed behind scutellum, but flattened around scutellum in female; base obsoletely depressed at striae 4 and 5; base with a few short to long, fine, white setae. Striae regular except obliterated beneath squamose areas, strial punctures approximately the diameter of a scale; intervals smooth and polished with an occasional fine puncture. Intervals 9 and 10 with very fine, moderately long recumbent setae. Fore femur of male 1.7-1.8x, of female 1.2x wider than hind femur; distally with weak serrulate flange; with faint honeycomb microsculpture becoming rugulose distally, without tubercles; set with very fine, straight setae. Fore tibia straight to apical fourth whence slightly inwardly bowed; surface punctate; inner edge with 12 small, uniform teeth. Middle and hind tibiae cylindrical, with row of bristles and tubercles of inner edge not strongly developed. Caudal surface of ventrites 2, 3, and 4 of female equal in height; edge of ventrite 2 rounded; edge of ventrites 3 and 4 acute. Ventrites 3, 4, and 5 basally with conspicuous honeycombed microsculpture. Ventrite 5 of male with entire surface with shallow but broad punctures; apex broadly truncate-emarginate, deflected (Fig. 301). Ventrite 5 of female as in Fig. 250, across base 1.6x wider than long; apex emarginate. Male genitalia as in Figs. 331, 332; aedeagus 3.5-3.7 mm long, apex of internal sac 1.5 mm long. Female genitalia as in Fig. 347; spermathecal duct 2.0 mm long.

Distribution.-Map 12. BRAZIL: 1 female (the type), locality questionable (see Remarks) (London). COLOMBIA: 1 male, no data (Auckland); 1 male, Bogotá (London); 1 male, Fusagasugá, V.18 (Paris). No data: 1 male (Oxford).

Remarks.-I hesitated to associate these four males with the very differently marked unique type of magicus for two reasons. First, I do not believe the species could range from "Brazil" (as the type is labelled) to Bogotá and Fusagasugá; hence if the association is correct, the Brazil label is suspect. Secondly, the length of the apex of the internal sac of the males would seem to suggest a longer spermathecal duct. However, other factors seemed to outweigh these considerations. Especially significant is the squamose mesepisternum and the elytral spots of the males occurring in positions that are also squamose in the female.

The white spots of the males are very uniform in all four specimens although the scales in one are distinctly oval. The apex of the internal sac is intermediate in length within the group.

46. Hadromeropsis (Hadrorestes) nitidus n. sp.

Figs. 239-242, 300, 333, 334, 348; Map 12

Diagnosis.-Based on unique male. Shiny black, sparsely clothed with small, round, bright blue scales. Elytra convex in cross section. Last tergite narrow apically. Sclerotized apex of internal sac tubular, 2.4 mm long, stiff.

Description.-Holotype, male, length 11.4 mm, width 3.9 mm. Color as in Diagnosis. Scales of elytra set in brief, shallow transverse depressions or on the smooth surface. Head and rostrum sparsely punctate (Figs. 239, 242). Dorso-lateral edges of rostrum slightly divergent apically, high, surface deeply concave between; median line impressed between anterior half of eyes, a few brief impressed lines parallel to it. Epistoma (Fig. 242) occupying 0.4 of anterior edge of rostrum, as long as wide, sides almost parallel, apex broadly rounded. Mandible with weak transverse groove, its anterior edge being the edge of scar of cusp. Funicle with second segment 1.2x longer than segment 1. Prothorax (Fig. 239) 1.1x wider than long, sides strongly rounded between constrictions; disc gently arcuate in profile. Pronotum with median line unmarked; basal constriction smooth and polished with trace of impressed lines on right side; sculptured with uniform, low, round tubercles which are contiguous on sides, some confluent on disc; setae arising from tubercles very inconspicuous, as long as diameter of a tubercle, recumbent. Scutellum with very fine recumbent setae, no scales. Elytra across humeri 1.3x wider than prothorax, 3.2x longer than prothorax, 2.3x longer than width across humeri. In dorsal view sides of elytra parallel for basal half thence very gradually convergent to apex (Fig. 241), weak apical umbone just touching the outline; apex rounded, its edge conspicuously dentate. In dorsal outline, a few very weak tubercles on sides of elytra on basal fourth and apical half. Elytra transversely convex. Base of elytra with stria 5 weakly depressed, postscutellar depression obsolete; base of elytra with a few very fine, dark, moderately long, erect setae. Disc of elytra with no tubercles from base to apical fourth where weak ones appear in intervals and striae, those of declivity small but more acute. Striae 9 and 10 opposite metasternum (Fig. 240) not more widely separated than striae 8 and 9. Intervals 9 and 10 with no erect setae. Fore femur 2.0x wider than hind femur; distal flange weak, edge granulate; anterior and posterior face smooth and shiny proximally, distally with weak honeycomb sculpture rapidly changing to impressed lines, with no shelf-like tubercles on posterior face; set with fine, stiff, dark setae. Fore tibia straight until distal third whence moderately inwardly bowed; inner edge with 11 small teeth and distal half with multiple long, dark, stiff setae; surface punctate, more coarsely so on outer surface. Dorsal surface of tarsi clothed with prostrate pale blue seta-like scales and conspicuous, stiff, distally-directed black bristles. Middle and hind tibiae on inner edge with row of 4 or 5 stout bristles, without tubercles. Mesepisternum moderately convex and with brief row of blue scales on outer edge. Metasternum and abdomen smooth and polished with numerous very fine, erect setae. Ventrite 5 (Fig. 300) with a few very fine punctures; apex broadly, deeply emarginate. Last tergite as in Diagnosis. Genitalia as in Figs. 333, 334. Aedeagus 3.6 mm long; internal sac with conical apex elongated into tube exteriorly minutely spiculate on basal half, more than 2.4 mm long (extreme apex accidentally broken off).

Type Series.-Holotype, ECUADOR, Napo, 7 km S Baeza, 22 Feb. 1979, H & A Howden, walking up blade of grass (Howden).

Remarks.-There is a female labelled "Columbia Baden" in the Dresden collection which I tentatively assign to this species. It differs from the type as follows. Length 12.3 mm, width 4.5 mm. All scales larger, very pale green except those forming a pattern on elytra dense, whitish; pattern consisting of a long loop from base of stria 4 to stria 2 at apical third and back to beneath humerus, a second oblique elliptical mark outlining apical umbone. Head, rostrum and prothorax similar to male except segment 1 of funicle slightly longer than segment 2. Elytra more coarsely sculptured and flatter; elytra 3.6x longer than prothorax; sutural interval at apex not longer than denticles along margin; striae 9 and 10 more widely separated opposite metasternum. Caudal surfaces of ventrites 2, 3, and 4 perpendicular, equal, moderate; ventrite 5 without lateral depressions; apex narrowly, deeply notched. Genitalia as in Fig. 348; spermathecal duct 5.0 mm, extreme in length as is the male endophallic structure.

The type of magicus resembles this female but differs in segment 2 of the funicle longer than 1; elytra with straight white vitta on interval 2 and vitta of stria 4 straight-edged until declivity, thus leaving intervals 1, 3, and most of 4 bare until declivity.

The mealy substance of Fig. 239 is incompletely dissolved wax; Fig. 240 shows large areas of untouched wax.

The type of nitidus resembles spiculatus in habitus but nitidus has the sides of the prothorax rounded instead of almost parallel-sided, disc of pronotum not flattened broadly, last tergite narrow, fore femur with setae of posterior face arising from almost smooth surface, elytra narrower apically, internal sac different and terminal tube spiculate proximally only and more slender.

All the definitions of the Latin adjective "nitidus" are appropriate for this species: shining, sleek, in good condition, elegant, etc.

47. Hadromeropsis (Hadrorestes) mandibularis n. sp.

Figs. 243-248, 346; Map 13

Diagnosis.-Mandible with two stout dorsal setae set in deep, sharply defined transverse groove (Fig. 243). Without full-sized scales dorsally or ventrally. Disc of prothorax with punctures in female or irregular pustules in male which gradually change to low, rounded tubercles on sides; median line unmarked. Apices of elytra of male broadly, individually rounded (Fig. 247). Fore femur of males sculptured as in Fig. 246. Spermathecal duct 4.5 mm long.

Description.-Holotype, female, length 16.2 mm, width 6.0 mm. Black; legs and antenna piceous. Clothed with minute greenish white scales; scales sparse on rostrum, head and prothorax, aggregated in transverse depressions on disc of elytra, more numerous on declivity. Head and rostrum (Fig. 243) uniformly punctate. Median line impressed for short distance on rostrum to between middle of eyes, with a few parallel grooves either side. Rostrum only slightly concave. Epistoma as in Fig. 243, 244; mandible as in Diagnosis and Fig. 244.

Funicle with segments 1 and 2 approximately equal in length. Head robust, eyes not very prominent. Pronotum as in Diagnosis and Fig. 245. Prothorax 1.09x wider than long, sides gently rounded between weak constrictions, widest before middle; anterior constriction unmarked on disc, basal constriction very weak; setae arising from lateral tubercles fine, recumbent, about as long as diameter of a tubercle. Scutellum with whitish seta-like scales. Elytra across humeri 1.6x wider than prothorax, 3.8x longer than prothorax. In dorsal view, sides almost parallel, very slightly convergent from about middle, apical umbone slightly arcuate in outline, sides thence almost straight to apex. In dorsal outline no tubercles present except small ones on apical umbone; margin of elytra conspicuously dentate around ventrite 5, sutural interval not modified into tooth. Elytra in profile flattened behind scutellum for basal seventh, then abruptly deflected, flat to summit of declivity, suture here set with 7 or 8 stout dark setae. Base of elytra with stria 5 scarcely depressed, without long setae. Intervals 1, 2, and 3 flat, smooth and polished, without squamose transverse depressions from near base almost to declivity in an elongate V. Elytra without tubercles except on declivity and just before apical umbone (Fig. 248); striae very regular; interval 10 wider opposite metasternum, interval 9 wider from hind coxa to apical umbone. Fore femur 1.5x wider than hind femur, with a weak serrulate flange; fore tibia with 10 small equal teeth on inner edge; outer edge punctate and set with numerous long, dark, wiry setae. Inner edge of middle tibia with row of 8 stout bristles each set at base of a sharp tubercle, hind tibia with 4 or 5 such bristles without tubercles. Caudal surface of ventrites 2 and 3 moderate, anteriorly slanted, equally high, edge not at all acute. Caudal surface of ventrite 4 less slanted, edge acute. Ventrite 5 across base 1.6x wider than long, feebly convex medially; apex narrowly truncate. Genitalia as in Fig. 346; spermathecal duct 4.5 mm long.

Allotype, male, length 11.6 mm, width 4.0 mm. Complete description impossible because of condition of specimen which is partly destroyed by dermestids, missing antennae except right scape and entire abdomen except ventrites 1 and 2. Differs from type as follows. Scales less numerous. Rostrum with median line sharply impressed between eyes only, entire rostrum concave, longitudinally convex either side of median line, the longitudinal grooves of the type represented by 2 traces. Transverse groove of mandible less developed. Pronotum more coarsely sculptured, punctures more or less replaced by irregular low pustules. Elytra across humeri 1.3x wider than prothorax, 3.0x longer than prothorax. Sides of elytra parallel, very gradually convergent from about 0.6, umbone weak, just touching dorsal outline; apices (Fig. 247) broadly, individually rounded. In dorsal outline, tubercles of lateral intervals obsolete basally, absent medially, conspicuous apically, denticles of apical edge very conspicuous. Smooth, polished area of intervals 1, 2, and 3 reduced to basal 0.5. Fore femur 1.8x wider than hind femur; sculpture as in Fig. 246; without shelf-like tubercles on posterior face. Fore tibia straight until basal 0.25 whence slightly curved inward. Middle and hind tibiae with bristles scarcely thicker than other setae, tubercles replaced by granules. Abdomen missing.

Type Series.-Holotype, COLOMBIA, S. Antonio, ex. coll. Clerc

(Paris). Allotype, COLOMBIA, St. Antonio, 2000 m, 16.6.1908, Coll. Pape, Hust. det., Hadromerus prope scabricollis Fst (Eberswalde).

The type locality could be the San Antonio on the road between Cali and Buenaventura where Fassl collected (Voss, 1953:29).

Remarks.-Bearing strong resemblance to *nitidus* and *magicus* in the head and rostrum and sharing the strong mandibular groove with *cavifrons* and *magicus*, *mandibularis* can be distinguished by the diagnostic characters. From *cavifrons* it also differs in the simpler rostrum and lack of tubercles on elytral intervals 8 and 9. A mandibular groove is also present in the *impressicollis* and *alacer* groups.

The very long spermathecal duct (second in length only to that of *nitidus*? female) suggests that the male will be found to have a very long endophallic structure, slightly shorter than that of *nitidus*, longer than that of *magicus*.

H. mandibularis is most closely related to *nitidus*, the males of these two species being most readily distinguishable by the shape of the elytra which in *nitidus* are more convex in cross section and profile, more nearly vertical at apex, more narrowly rounded at apex, and with weaker postscutellar depression. When more specimens are found, it is probable that additional characters will be found in the ventrite 5 and last tergite as well as in the genitalia.

The name *mandibularis* refers to the extreme development of the dorsal groove on the mandible.

48. *Hadromeropsis* (*Hadrorestes*) *spiculatus* n. sp.

Figs. 38, 280, 286-288, 327, 357; Map 12

Diagnosis.-Resembling *pectinatus*, differing especially in the following. Slender in habitus (Fig. 38). Pronotum flattened medially (Fig. 288). Apical edge of elytra of female briefly indented before sutural tooth (Fig. 280). Fore tibial teeth more uniform in size and anterior face of fore tibia punctate only. Internal sac as in Fig. 327, apex spiculate, very long.

Description.-Holotype, male, length 10.8 mm, width 3.6 mm. Piceous, except head, base of rostrum and most of prothorax black. Head and rostrum (Fig. 288) similar to *pectinatus* but sculpture finer, fovea absent and median line finely impressed to behind eyes. Funicle with segment 2 subequal to segment 1. Prothorax (Fig. 288) scarcely wider than long, sides only weakly rounded between constrictions; prothoracic sculpture consisting of low rounded tubercles of approximately uniform diameter, tubercles of broad median flattened area very shallow and tending to be arranged in rows; setae of prothorax long, more slender than in *pectinatus*. Elytra across humeri 1.2x wider than prothorax; elytra 3.1x longer than prothorax, 2.4x longer than width across humeri. In dorsal view (Fig. 38) sides of elytra parallel for basal 0.2, thence very slightly wider, tapering gradually to apex from apical 0.5, apical umbone very weak but touching outline. Base of elytra depressed at stria 5, more strongly depressed behind scutellum than in *pectinatus*. Elytral tubercles less developed than in *pectinatus*, absent on sides of elytra centrally.

Elytral surface smooth and polished between striae with no sculpture except that of declivity which gradually begins caudad of middle; striae very regular and distinct on disc, still recognizable on declivity. Fore femur 2.4x wider than hind femur. Entire surface of fore femur with fine microsculpture, on anterior face (Fig. 286) rugulose, on posterior face (Fig. 287) finely impressed netted or honeycomb sculpture, distal half with superimposed crowded large setiferous tubercles not strongly shelf-like; inner edge distally with gradual, weak flange, sharply denticulate on edge. Fore tibia (Fig. 286) with sculpture of punctures only, with 8-10 sharp teeth on inner edge and a few extra granules on posterior face. Middle tibia on inner face near edge with 3-5 sharp tubercles each with a stout bristle; hind tibia with 3 bristles without tubercles. Genitalia as in Fig. 327; aedeagus 3.5 mm; internal sac with apex elongated into stout exteriorly spiculate tube 2.5 mm long.

Allotype, female, length 13.1 mm, width 5.0 mm. Differs from type as follows. Reddish-brown (slightly teneral), only meso- and metasterna, scutellum, head and base of rostrum black. Normal vestiture uncertain because of teneral condition, but elytra with many minute elongate scales and with full-sized creamy white scales (mostly transparent in allotype) forming a vitta on left elytron from humerus on interval 7 to interval 5 at middle. Rostrum wider, more densely sculptured. Elytra across humeri 1.5x wider than prothorax; elytra 3.5x longer than prothorax; elytra 2.4x longer than width across humeri. Elytra slightly wider at middle, apex more elongate (Fig. 280). Sutural interval at summit of declivity with 15-16 long, erect setae. Fore femur 1.4x wider than hind femur, sculpture as in type but without shelf-like tubercles; flange of inner edge and denticles scarcely weaker than in type. Middle tibia without tubercles on inner face, with 6 or 7 stout bristles; hind tibia with 3 stout bristles. Caudal surface of ventrites 2 and 3 anteriorly inclined, edge not sharp; smooth and shiny but with trace of sculpture basally. Caudal surface of ventrite 4 perpendicular, edge straight in posterior view, smooth and polished. Ventrite 5 across base 1.5x wider than long, only feebly convex medially. Genitalia very extreme in development (Fig. 357), spermathecal duct of average diameter at nodulus only, gradually becoming larger and testaceous in color, expanded and bulbous before bursa, narrower again at entrance of bursa.

Type Series.-Holotype, PERU, Huánuco, Acomayo, 2100 m, 7 June 1946, F. Woytkowski Coll., Donor Wm Proctor (New York). Allotype, PERU, Huánuco, Carpish, 2800 m, 14 Oct. 1946, F. Woytkowski Coll., Donor Wm Proctor (New York). Paratype, 1 female, BOLIVIA, L. P., 9 mi NE Unduavi, Chuspipata Ridge, cloud forest, Apr. 9, 1979, Collectors: L & C.W.O'Brien (O'Brien).

Remarks.-The paratype is 11.3 mm in length, 4.2 mm in width. Like the allotype it also appears slightly teneral, but the vestiture is in fresh (not waxy) condition and the dorsum bears a few more scales. The paratype differs as follows. Rostrum, prothorax, elytra, appendages reddish-brown; head, meso- and metasterna and abdomen black. With minute elongate white scales scattered on dorsum of head and rostrum, sides and disc of prothorax, and elytra except medially; a glabrous area on elytra vaguely outlined by larger scales from interval 4 and 5 at base to suture at apical 0.25. Long, conspicuous, fine white setae on sides of prothorax and sides of rostrum apically. Elytra 4.1x longer than prothorax, base of elytra scarcely impressed at interval 5. Most setae abraded from sutural interval at summit of declivity. Fore femur 1.2x wider than hind femur. Ventrite 5 moderately convex on apical half. Spermathecal duct "normal", i.e., not distended as in allotype; 1.7 mm long.

The difference in the spermathecal duct between the allotype and paratype seems too great for intraspecific variation. Is the difference attributable to some physiological factor, or age, or are two species involved?

The species is named spiculatus because of the extreme spiculate apex of the internal sac.

Species Not Assigned to Group

49. picchuensis n. sp. 50. cavifrons n. sp.

Remarks.-Based on the small sample (four specimens) of females only, the relationships of these two species are not obvious, but they do belong to Hadrorestes.

49. Hadromeropsis (Hadrorestes) picchuensis n. sp.

Figs. 31, 271-273, 353; Map 12

Diagnosis.-Based on female only. Clothed with round, mostly discrete scales of cream, pale tan or rose, at most only faintly iridescent; elytra with larger white scales arranged in faint fasciae and vaguely outlining common glabrous area on basal half medially as in Fig. 31. Disc of pronotum broadly flattened (Fig. 271). Elytral intervals 8, 9, and 10 with very long setae set at a 45° angle or greater, setae very conspicuous in dorsal view. Genitalia with a large sclerite in bursa copulatrix at junction of duct (Fig. 353).

Description.-Holotype, female, length 10.5 mm, width 4.3 mm. Integument brown, head and rostrum piceous except part of mandible and epistoma reddish. Squamose as in Diagnosis, Fig. 31. Rostrum with dorso-lateral edges parallel, sides almost perpendicular, surface of rostrum almost flat (flatter than in Fig. 271 of paratype); median line briefly impressed between eyes; with a few fine, glabrous rugulae showing between scales of head and rostrum. Mandible with one long dorsal seta set in a vague shallow depression. Funicle with segments 1 and 2 subequal. Prothorax as in Diagnosis and Fig. 271; 1.2x wider than long, sides moderately rounded between weak constrictions. Sides of prothorax with scattered weak tubercles only slightly larger than a scale, each tubercle bearing a very fine seta as long as 2-3 scales, setae closely appressed. Prosternum with scales transversely elongate; with long, wispy setae. Scutellum densely clothed with imbricate scales. Elytra as in Diagnosis and Fig. 31. Elytra across humeri 1.4x wider than across prothorax; 3.7x longer than prothorax. In dorsal view sides of elytra slightly divergent from humeri to just beyond middle, thence gradually converging to apex; apical umbone weak, feeble in dorsal outline; a few weak setiferous tubercles present in dorsal outline basally and apically. Elytra in profile with declivity very gradual, summit unmarked except by 7 or 8 long, wispy setae; sides of elytra strongly turned under opposite ventrites 2, 3, and 4 (Fig. 273) (partly an artifact of teneral condition?). Base of elytra obsoletely depressed at stria 5, distinctly depressed behind scutellum; base of elytra with many long, wispy setae, some as long as the long setae of summit of declivity; some setae arising from tubercles like those of prothorax; similar tubercles present on apical third of elytra including declivity. Striae almost completely regularly punctate. Apex of elytra as in Fig. 272; edge with scattered denticles smaller than an adjacent scale; sutural interval attenuate into small tooth. Fore femur 1.2x wider than hind femur, distal flange obsolete; faint sculpture concealed by scales. Fore tibia straight, inner edge with 8-10 acute teeth, each tooth with an unusually conspicuous bristle exceeding the tooth in length (an artifact of teneral condition?). Middle tibia with 5, hind tibia with 3 stout bristles on inner surface dorsally. Abdomen crumpled in type, apparently similar to that of paratype which has caudal surface of ventrites 2, 3, and 4 perpendicular, moderate, equal. Ventrite 5 almost flat, no lateral depressions, median convexity very weak, 1.6x wider than long. Genitalia as in Fig. 353; spermatheca very slender, in one plane; spermathecal duct 2.5 mm long, with a large sclerite in bursa at junction of duct.

Type Series.-Holotype, PERU, Cuzco, Torentoy Canyon (Base Machu Picchu), 2000 m, VI-VII.1964, B. Malkin (São Paulo). Paratype, 1 female, PERU, Cuzco, Machu-Picchu (sobre ruinas, 2600-2800 m), 1-2.VII.1964, B. Malkin (Howden).

Remarks.-The paratype appears to be slightly more teneral than the type and was not dissected. It measures 9.5 mm long, 3.9 mm wide, and differs conspicuously only in the apex of the elytra which has the tooth almost absent.

The pattern formed by the scales, the softer integument (although possibly only an artifact of teneral condition), and the spermatheca in one plane are characters more common in the nominate subgenus. The large bursal sclerite is similar to that of the argentinensis and nobilitatus groups, but the sclerotized streaks of the vagina of those groups are absent. The lateral sclerites are exclusive to Hadrorestes. Characteristics of the male genitalia are difficult to predict.

50. Hadromeropsis (Hadrorestes) cavifrons n. sp.

Figs. 282-285, 356; Map 13

Diagnosis.-Based on female only. Frons and rostrum grossly hollowed out, the dorso-lateral edges of rostrum elevated, thus accentuating the concavity (Figs. 282, 283). Mandible with dorsal setae set in a deep transverse groove. Elytra with sharply defined markings of yellowish scales forming a basal ring, median zigzag fascia and an apical band or ellipse encircling apical umbone. Spermathecal duct 2.5-3.0 mm long.

Description.-Holotype, female, length 17.4 mm, width 6.8 mm.

Black; femora and tibiae pale reddish, black at ends. Integument dorsally and ventrally apparently with sparse, minute, green scales which are mostly abraded; prothorax and elytra with a pattern formed by large yellowish, dense scales; on prothorax (partly abraded) in at least a line anteriorad of basal constriction continuing ventrad beside and behind fore coxa. Elytral pattern consisting of basal ring between stria 5 and scutellum; thick median zigzag fascia; and broad, oblique ellipse just before declivity. Hind coxa covered with green and yellow scales of various shapes, medium size. Head and rostrum as in Diagnosis and Figs. 282, 283. Segment 2 of funicle slightly but distinctly longer than segment 1. Prothorax (Fig. 283) with disc almost smooth, median line obsoletely finely impressed; sides very weakly tuberculate. In profile almost flat, except for elevated basal constriction. Scutellum with a few small, round, green scales. Elytra across humeri 1.6x wider than prothorax, 3.7x longer than prothorax, 2.3x longer than width across humeri. In dorsal view sides rounded at about middle, the gentle curve continuous with apical umbone; sides of apex weakly curved from beneath stria 4 to suture, its edge strongly dentate, sutural interval elongated into a very brief tooth (Fig. 285). Base of elytra with very weak postscutellar depression, humeri suddenly produced from stria 5. Sides of elytra in dorsal view with continuous small, acute tubercles, tubercles situated on intervals 8 and 9. Interval 10 opposite metasternum wide, tuberculate; striae here and on declivity somewhat irregular, elsewhere regular. Suture at summit of declivity with 8 long, dark setae. Fore femur 1.3x wider than hind femur, with weak serrulate flange. Fore tibia with 14-16 very small teeth on inner edge; outer edge of fore tibia with long setae not stiff and wiry; outer surface punctate, some punctures coalescing into short grooves. Middle tibia on outer edge with 2 sulci, inner surface with row of 10 stout bristles. Hind tibia (Fig. 284) on outer edge with single sulcus; inner surface with row of 7 stout bristles. Caudal surface of ventrites 2, 3, and 4 slightly overhanging succeeding ventrites, equal, sharp-edged. Ventrite 5 with moderate median convexity; across base 1.4x wider than long; apex narrowly rounded. Genitalia as in Fig. 356; without lateral sclerites, no sclerite seen at junction of duct with bursa copulatrix; duct 2.5 mm long, testaceous. Spermatheca strongly twisted in several planes.

Type Series.-Holotype, PERU, Piches and Perenes Vs, 2000-3000 ft, Soc. Geog de Lima (Washington, USNM Type No. 100192). Paratype, 1 female, PERU, Huánuco, Divisoria, 1600 m, 31.7.47, Schunke leg., coll. Kuschel (Auckland).

Remarks.-The paratype is 15.8 mm long, 6.0 mm wide, and differs from the type as follows. Elytral median fascia on side of elytra at stria 7 continues anteriorly in a vitta to base of interval 9; elytra across humeri 1.5x wider than prothorax; elytra 3.8x longer than prothorax; sides of elytra in dorsal view with no tubercles in central portion; fore femur 1.5x wider than hind femur; middle and hind tibiae with only 4 stout bristles each; all tibiae without sulci on outer surface; caudal surface of ventrites 2 and 3 not overhanging but slightly anteriorly slanted; ventrite 5 across base 1.6x wider than long; spermathecal duct 3.0 mm long ending in a large disc inside bursa copulatrix. The significant differences are the presence of a bursal sclerite and the smooth, non-sulcate tibiae. Since I am certain the two females are conspecific, then the bursal sclerite and sculpture of the tibiae must be added to the long list of intraspecifically variable characters.

Because this species clearly belongs to Hadrorestes in all the characters listed for the subgenus except for the lack of paired lateral sclerites, I presume these have been secondarily lost. More material, especially males, are needed to establish the relationship of this species to others.

Incertae sedis

51. Hadromeropsis earinus n. sp. 52. Hadromeropsis striatus n. sp.

These two species, each described from a unique specimen, are not assigned to a subgenus for the reasons discussed under Remarks.

51. Hadromeropsis earinus n. sp.

Figs. 289-293, 335

Diagnosis.-Based on unique female. Eye small (Fig. 289), separated from prothorax by its length. Clothed with iridescent scintillating green scales. Prothorax (Fig. 290) with basal and apical constrictions strong laterally and dorsally, surface irregularly sculptured and subtuberculate on sides. Base of elytra between striae 5 abruptly perpendicular and slightly anteriorly produced. Margin of caudal surface of ventrites 2, 3, and 4 not acute, the edge and half the adjacent caudal surface densely covered with elongate appressed scales (Fig. 293). Spermatheca with ramus replaced by circular membranous area. With neither sclerites in the bursa copulatrix nor lateral sclerites in the vagina.

Description.-Holotype, female, length 13.0 mm, width 4.6 mm. Black. Clothed as in Diagnosis. Scales small, circular; dense, imbricate ventrally; less dense on dorsal surface, elytra appearing slightly tessellate because of varying density of scales. Dorsal setae short, broadly lanceolate to almost spatulate, curved, as long as 1-2 scales. Head and rostrum as in Fig. 289. Rostrum 1.26x longer than width at apex, strongly longitudinally concave from between eyes to about middle, dorso-lateral edges prominent, apically divergent; median line finely impressed between apical half of eyes. Surface of head and rostrum not sculptured. Mandible without dorsal groove, with only one long seta arising from a fovea. Funicle with segments 1 and 2 equal in length; antennal club very long, as long as segments 1 to 4 of funicle. Prothorax as in Fig. 290, Diagnosis; 1.08x wider than long. Postocular vibrissae very well developed, reaching 0.6 to eye. Scutellum small, squamose as elytra, broadly rounded posteriorly. Elytra across humeri 1.5x wider than prothorax, elytra 3.8x longer than prothorax; elytra 2.4x longer than width across humeri. In dorsal view base of elytra (Fig. 290) slightly arcuately emarginate between striae 5 and as in Diagnosis; humeri strongly angled posteriorly, sides of elytra gradually divergent to middle where they are 1.15x wider than across humeri, thence gradually converging to elongate apex, apical umbone briefly entering outline. Sides of apex straight caudad of umbone, apex (Fig. 291) elongate, suture attenuated into conspicuous tooth approximately 0.5 mm long. Lateral edge of elytra absolutely smooth. Elytra nowhere with tubercles; with strong, transverse postscutellar depression; interval 7 faintly keeled between middle and apical umbone; umbone slightly keeled, this keel continuing obliquely towards apical tooth (Fig. 291). Remainder of surface very faintly, irregularly, undulating and faintly depressed around punctures. Suture at summit of declivity with approximately 15 very conspicuous, long, straight, white setae. Striae regularly punctate; each puncture approximately as wide as a scale, each with a broad seta curled over it; striae 9 and 10 concealed by densely imbricate scales, but traceable by setae, clearly visible from inside elytra. Legs without sculpture. Fore femur slender, 1.08x wider than hind femur, 1.2x wider than middle femur; with no trace of flange on inner edge distally. Fore tibia long, slender, distal 0.3 bowed inward; inner edge with 13 small, equidistant teeth, the oblique bristle on distal face of each tooth longer than tooth. Middle tibia on inner face with 9 strongly oblique bristles, most set on small tubercles; hind tibia with 6 oblique bristles without tubercles. Suture between ventrites 1 and 2 strongly anteriorly arcuate on central half (Fig. 292). Caudal margin of ventrites 2, 3, and 4 as in Diagnosis and Fig. 293. Ventrite 5 across base 1.4x wider than long, with a slight convexity on either side near base, moderate median convexity, apex narrowly truncate. Genitalia as in Diagnosis and Fig. 335, spermatheca in one plane, spermathecal duct approximately 1.4 mm long.

Type Series.-Holotype, ECUADOR, - -[illegible], Coll. J. Faust, Ankauf 1900 (Dresden).

Remarks.-Some of the characteristics of this unique female are so extreme that its relationship to other species groups is obscure. the partially squamose and rounded edge of the caudal margin of ventrites 2, 3, and 4 are the most extreme in the genus, but a glabrous male of this species might have no scales and the edge acute. The suture between ventrites 1 and 2 is much more strongly arcuate than in any Hadromeropsis seen. The fore femur is slightly more slender than in any other female seen. The membranous ramus is unique and so unusual that one might suspect an aberration. I take a conservative position here and wait for more material to clarify the situation.

When a male of this species is available, subgeneric placement can be reconsidered on the condition of its vestiture, including the caudal margin of ventrites 2, 3, and 4; the edge of the elytra (males of Hadrorestes often have the denticles of the edge of the elytra stronger than in the female); and the form of the endophallic structure.

The habitus of earinus is more like that of Hadrorestes than the nominate subgenus, but it does not fit there because the edge of the elytra is smooth, striae 9 and 10 are well-separated their full length, the striae are regular beneath the apical umbone, and there are no lateral sclerites in the vagina. Of the species groups, earinus seems most closely related to the alacer group which has the eye distant from the prothorax, scarcely enlarged fore femur in the female and less acute caudal margin of ventrites 2 and 3. It differs from that group in the strong postocular vibrissae, regularly aligned strial punctures, strongly depressed postscutellar area, and segments 1 and 2 of funicle equal.

The name is derived from the Greek word "earinos" meaning the color of spring green.

52. Hadromeropsis striatus n. sp.

Figs. 358-362, 368-370

Diagnosis.-Based on unique male. Rostrum narrow in dorsal view, thin in profile (Figs. 358, 359). Elytra with prominent, straight striae; strial punctures deep; intervals convex. Brachypterous: wing 0.6x length of elytron, mesepimeron narrow, elytra extremely narrow across humeri. Fore femur enormously swollen; without shelf-like tubercles on posterior face; with strong flange on inner edge distally. Internal sac (Figs. 368, 369) without internal sclerites; with heavily sclerotized distal tube.

Description.-Holotype, male, length 11.8 mm, width 4.0 mm. Black except antennae reddish; with minute blue scales scattered over dorsum and legs, scales round, oval or elongate. Side of head below eye with patch of white to gray-blue scales of various sizes and shapes. Head and rostrum as in Diagnosis, Figs. 358, 359. Dorsum of rostrum very shallowly concave. Surface of head and rostrum including epistoma and mandible with fine microsculpture; head and rostrum also with additional moderate, irregular sculpture, not distinctly punctate; frontal fovea moderate, median line not marked except as vague carina from interantennal line to apex of epistoma. Epistoma occupying 0.4 of anterior edge of rostrum, posterior margin thickened. Scrobe more distant from eye than is usual for genus (Fig. 359). Mandible with no long dorsal setae, but one moderately long dorso-lateral seta in an elongate fovea. Antennal scape in resting position reaching anterior margin of prothorax (Fig. 359, but head twisted in photo) funicle with segment 1 slightly longer than segment 2. Eye separated from anterior margin of prothorax by 0.7x its own diameter. Prothorax as in Fig. 359. Prothorax 1.1x wider than long; sides in dorsal view almost straight, distinctly wider before middle. Surface slightly uneven; surface evenly, densely covered with slightly irregular rounded tubercles; each tubercle with a very slender seta, those on sides much longer and more nearly erect than dorsal setae. Postocular vibrissae weak. Elytra across humeri only 1.05x wider than prothorax. Elytra 2.3x longer than width across humeri; elytra 2.9x longer than prothorax. Elytra as in Diagnosis. Sides of elytra parallel for basal 0.26, thence gradually divergent, widest just caudad of middle, convergent to apex; apex (Fig. 360) truncate from approximately stria 3, sutural interval briefly produced into a tooth. Striae and intervals very regular, straight; strial punctures very deep and intervals convex (Fig. 361) from base to unmarked declivity; on declivity (Fig. 360) strial punctures rapidly becoming obsolete and intervals flat; small tubercles on basal 0.25 of elytra only. All surfaces of elytra with irregular microsculpture, more pronounced laterally and on declivity. Edge of elytra absolutely smooth. Apparently without long, wispy setae; all intervals with row of pale, slender setae, those of alternate intervals very slightly longer than seta of even-numbered intervals; setae suddenly longer, straight and erect on apical half of elytra laterally and on declivity, the longest approximately 0.5 mm. Wing as in Diagnosis. Fore femur as in Diagnosis and Fig. 359, 2.2x wider than hind femur. Surface of fore femur almost smooth proximally, becoming minutely rugulose distally, without punctures; inner edge with small scattered tubercles, tubercles pronounced on distal flange. Fore tibia (Fig. 362) straight medially, weakly bowed distally and proximally; inner edge very irregular, proximal half with small tubercles, distal half with large medial tooth followed by 4 or 5 teeth of various sizes, one bifid on right tibia of type; fore tibia with numerous granules on anterior and posterior face, outer edge with small punctures on smooth surface. Fore tarsus similar to that of *pectinatus* in Fig. 308. Middle and hind femora slender for proximal half then abruptly swollen; middle tibia on inner edge with 5 small indistinct tubercles, larger tubercles with a stout bristle arising from base; hind tibia without tubercles or teeth on inner edge. Ventrites 1, 2, and 3 with very fine microsculpture of transverse rugulae; ventrites 1 and 2 with setae arising from minute punctures, punctures stronger on ventrite 3. Ventrite 4 with punctures more numerous. Ventrite 5 (Fig. 370) 1.9x wider than long; with crowded punctate-rugulose sculpture; sharp lateral edge stops abruptly at middle of sides, at which point ventrite becomes convex; apex emarginate. Genitalia as in Figs. 368, 369; aedeagus 3.9 mm, aedeagal apodeme 2.5 mm, tegminal strut 2.6 mm. Internal sac without internal sclerites; with heavily sclerotized, stout distal tube.

Type Series.-Holotype, COLOMBIA, Paso Bella Vista above Duriamaina, 3760 m, 7 Dec. 1978, H. Sturm, in dead leaves of Libanothamnus, 78, coll. Kuschel (Auckland).

Remarks.-The integument of the type was cleaned of a thin film of transparent wax even though the long, wispy setae usually associated with wax were not evident.

This species is tentatively assigned to *Hadromeropsis* because it shares more characters with that genus than with any other genus I know. The species does not conform to either of the two subgenera of *Hadromeropsis*. Most important, the unique internal sac lacks the heavy internal sclerites characteristic of all *Hadrorestes* and of the *argentinensis* and *nobilitatus* groups of the nominate subgenus, but is not closely related to the remaining flagellate groups either. The long sclerotized tube at the apex of the internal sac is difficult to relate to any *Hadromeropsis* I have seen and a polyphyletic element may have been introduced by including the species. However, it is conceivable that the distal fraction of the sclerotized tube represents the sclerotized apex of *Hadrorestes* and the long proximal portion represents the heavy internal sclerites of *Hadrorestes* without the membranous case.

Other extreme expression of generic characters are: posterior margin of epistoma thickened, antennal scape reaching anterior margin of prothorax (but almost as long in *pectinatus*), antennal scrobe well separated from eye, prothorax with anterior constriction distinct in profile.

The species resembles a Hadrorestes on external characters but differs from that subgenus in the well-separated striae 9 and 10 and the lack of denticles or tubercles around the edge of the elytra. It is possible though, that both of these qualities are a consequence of brachyptery, especially in this species with the shortest wing of the three brachypterous species.

The species is named striatus for the very conspicuous elytral striae.

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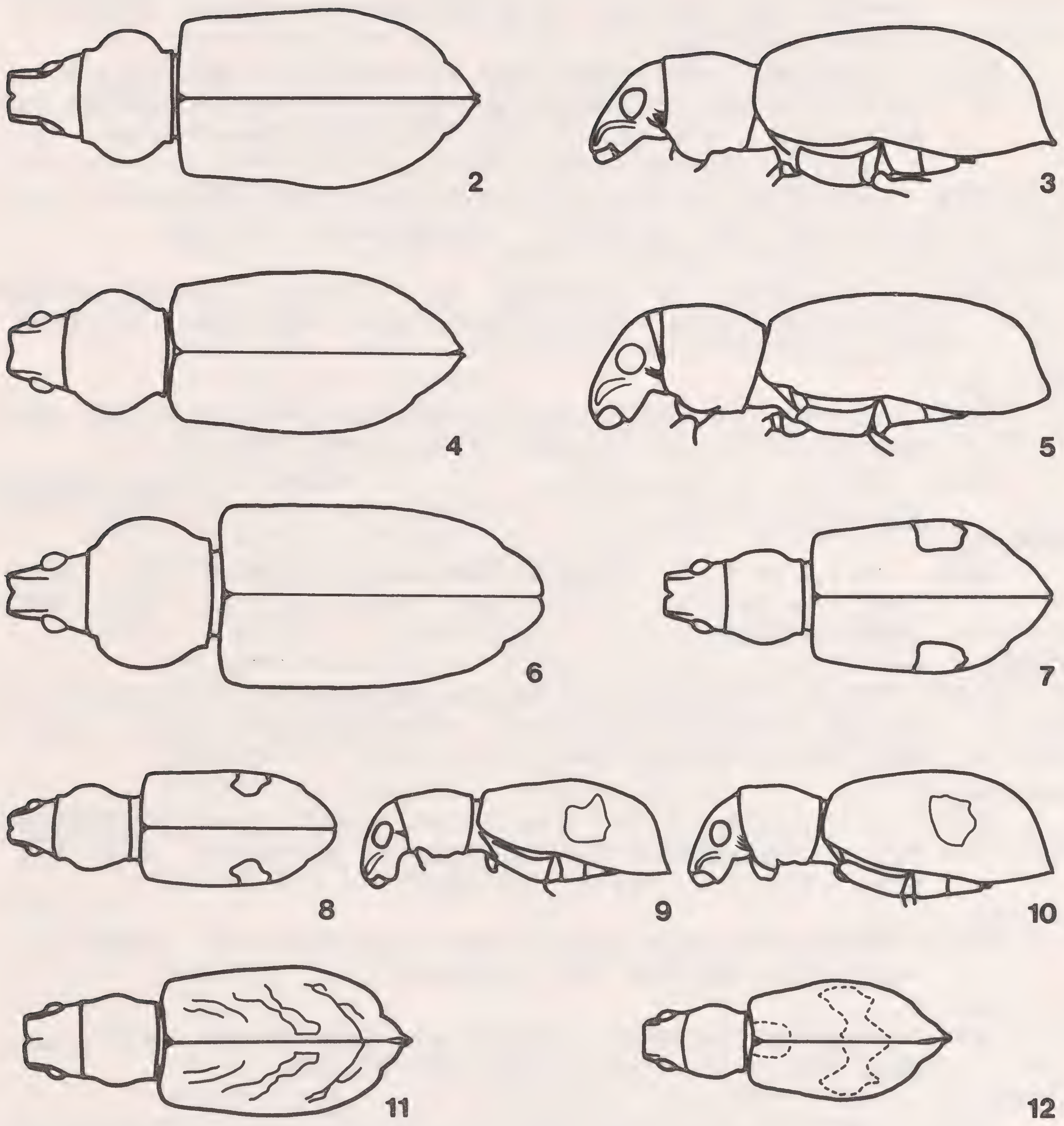
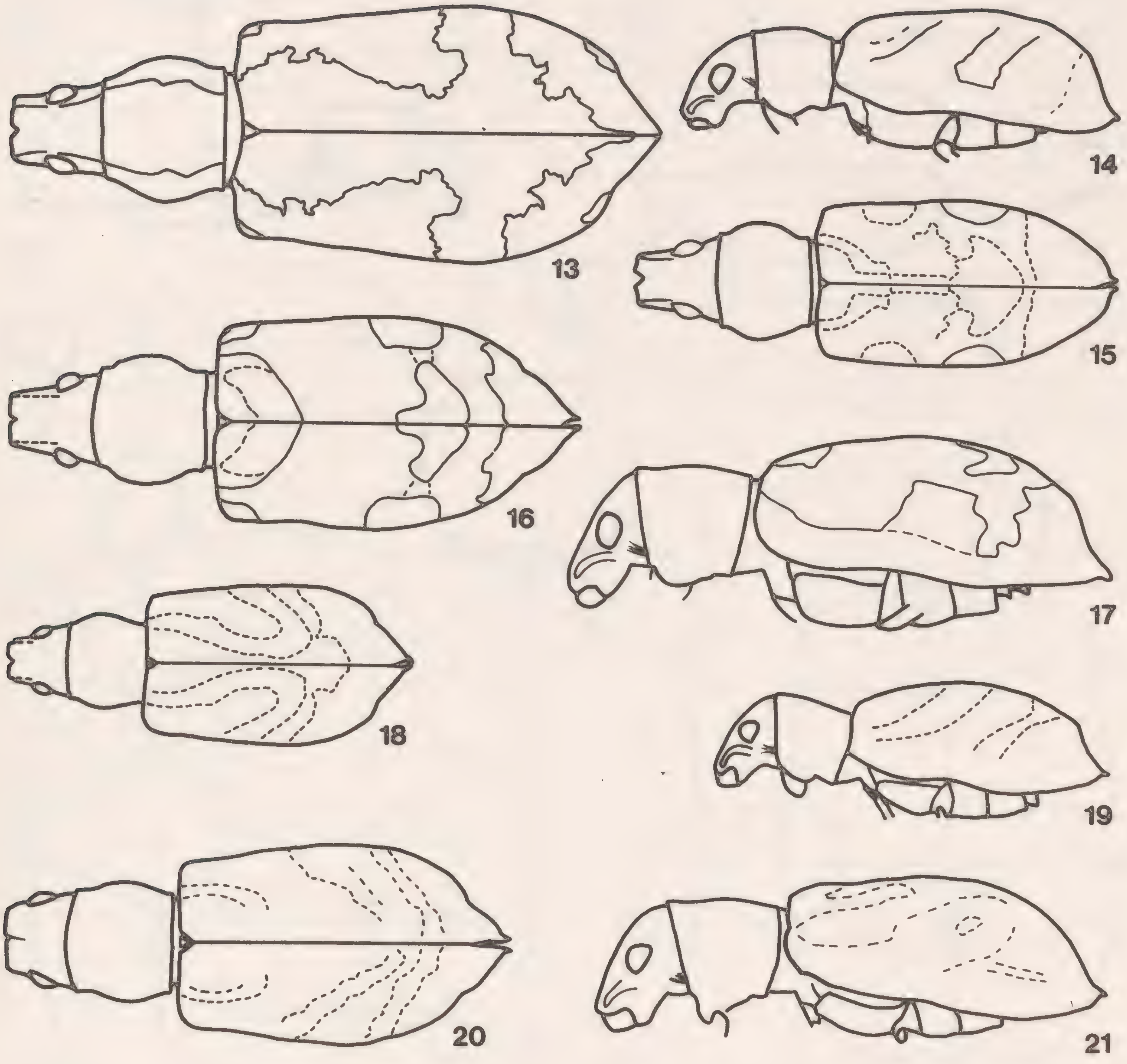
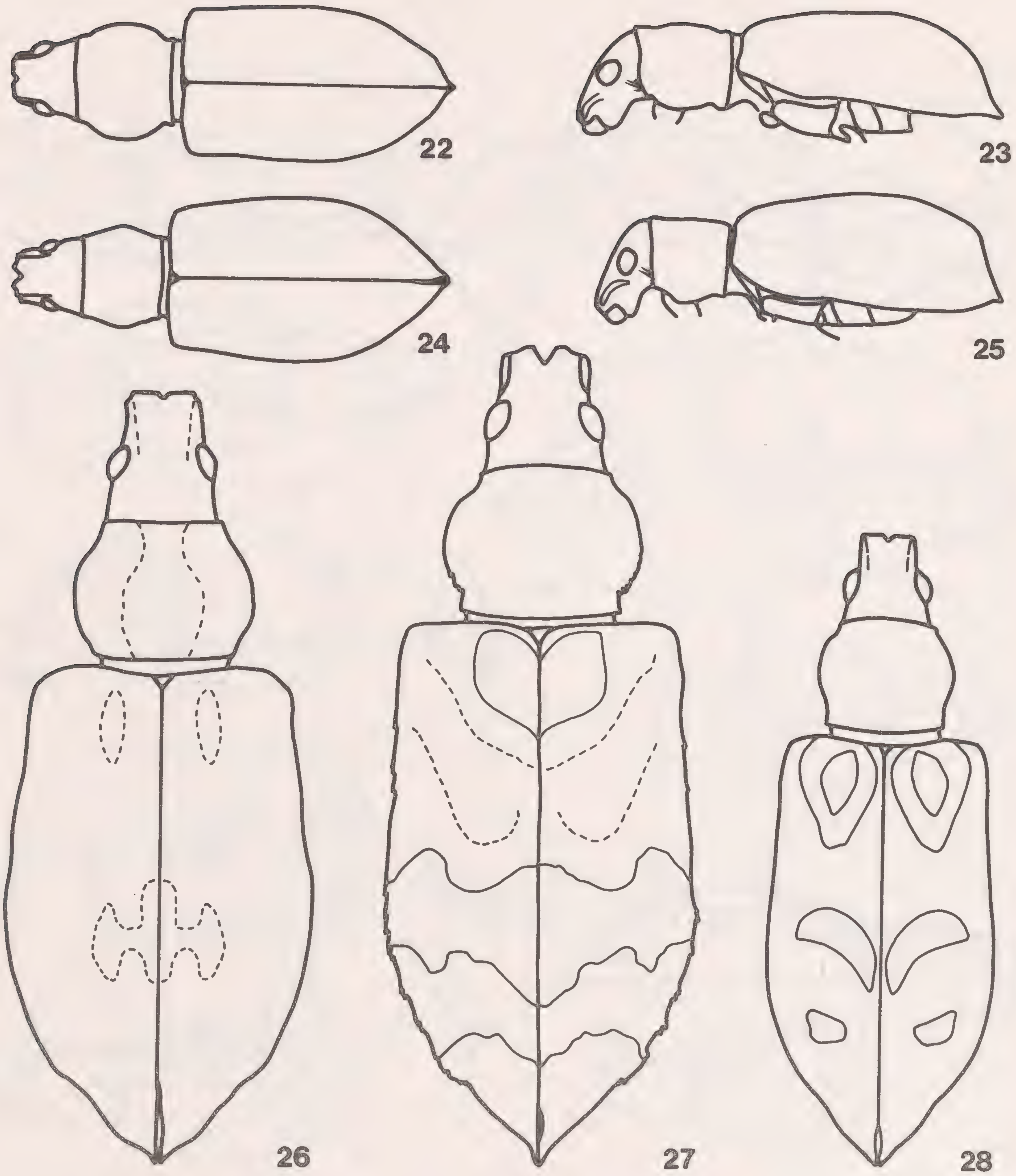


Figs. 2-12. *H.* (*Hadromeropsis*) spp. habitus. 2-3, *superbus*, female: 2, dorsal; 3, lateral. 4-5, *meridianus*, male: 4, dorsal; 5, lateral. 6, *gemmifer*, male, dorsal. 7-10, *argentinensis*: 7, female, dorsal; 8, male, dorsal; 9, male, lateral; 10, female, lateral. 11, *speculifer*, female, dorsal. 12, *pulverulentus*, female, dorsal.

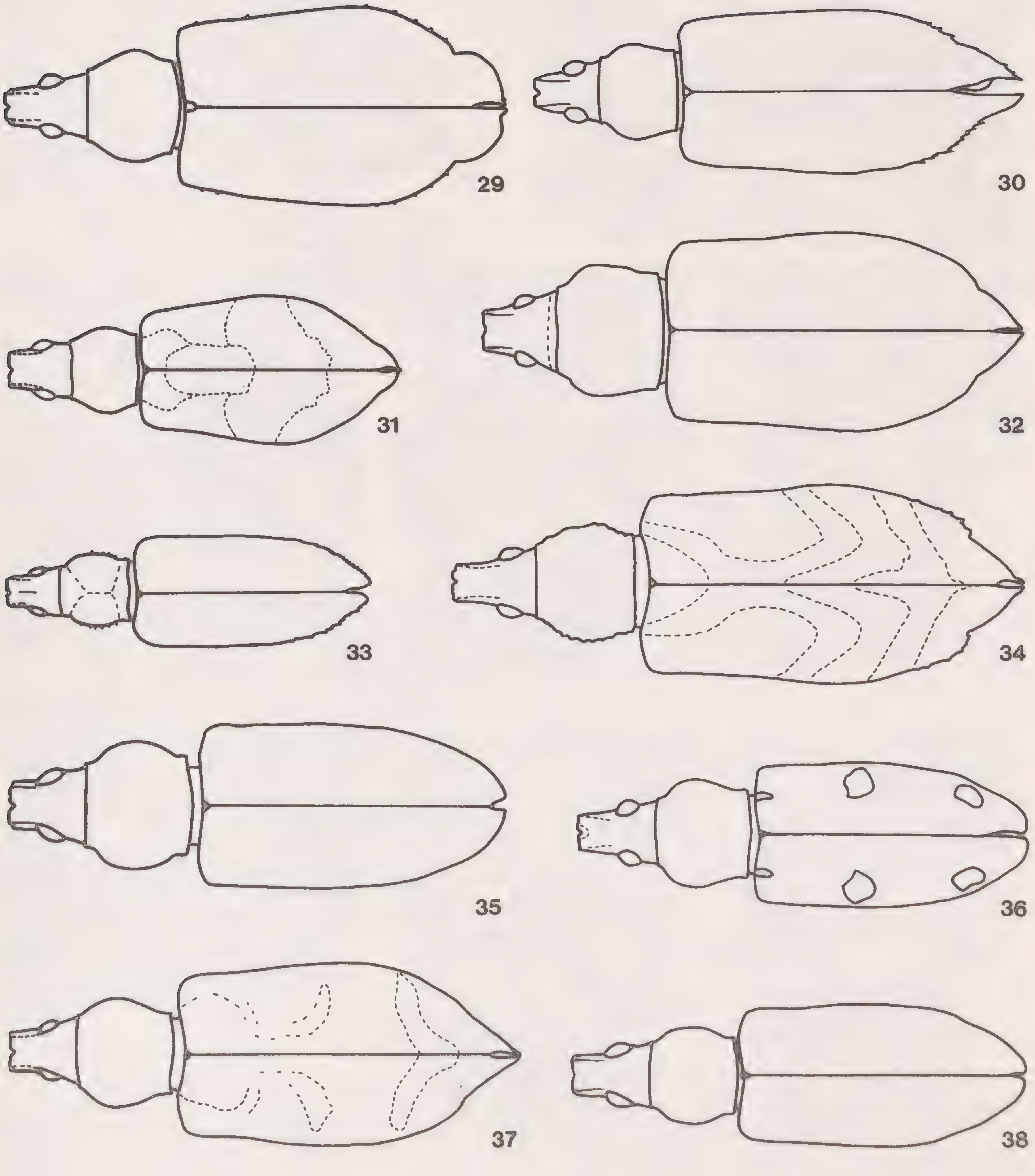


Figs. 13-21. *H.* (*Hadromeropsis*) spp. habitus. 13, *togatus*, female, dorsal. 14, *nobilitatus*, female, lateral. 15-17, *plebeius*: 15, male, dorsal; 16, female, dorsal; 17, female, lateral. 18-19, *atomarius*, female: 18, dorsal; 19, lateral. 20-21, *pallidus*, female: 20, dorsal; 21, lateral.

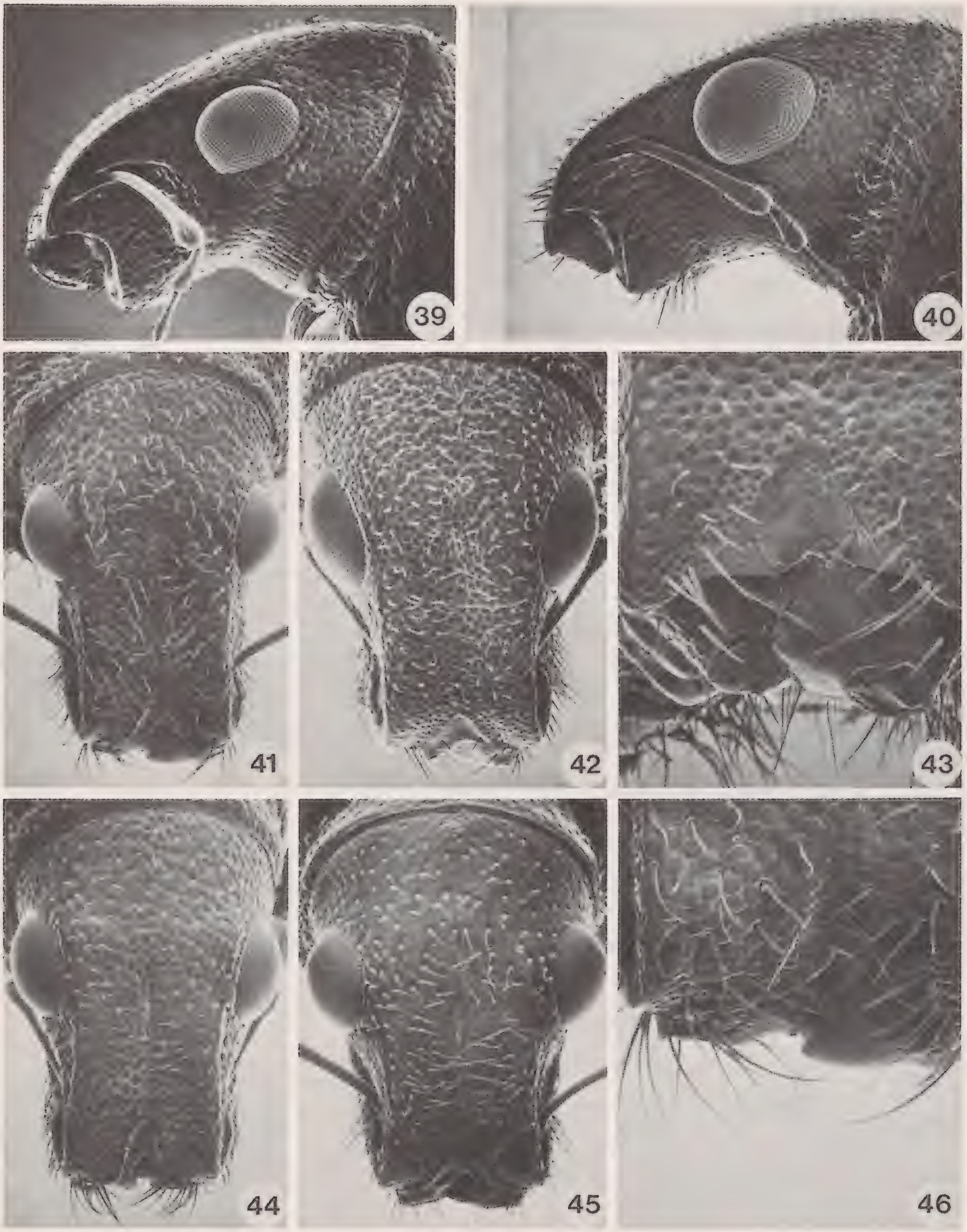


Figs. 22-25, 27. *H.* (*Hadromeropsis*) spp. habitus. 22-25, *beverlyae*: 22, male, dorsal; 23, male, lateral; 24, female, dorsal; 25, female, lateral. 27, *fasciatus*, female, dorsal.

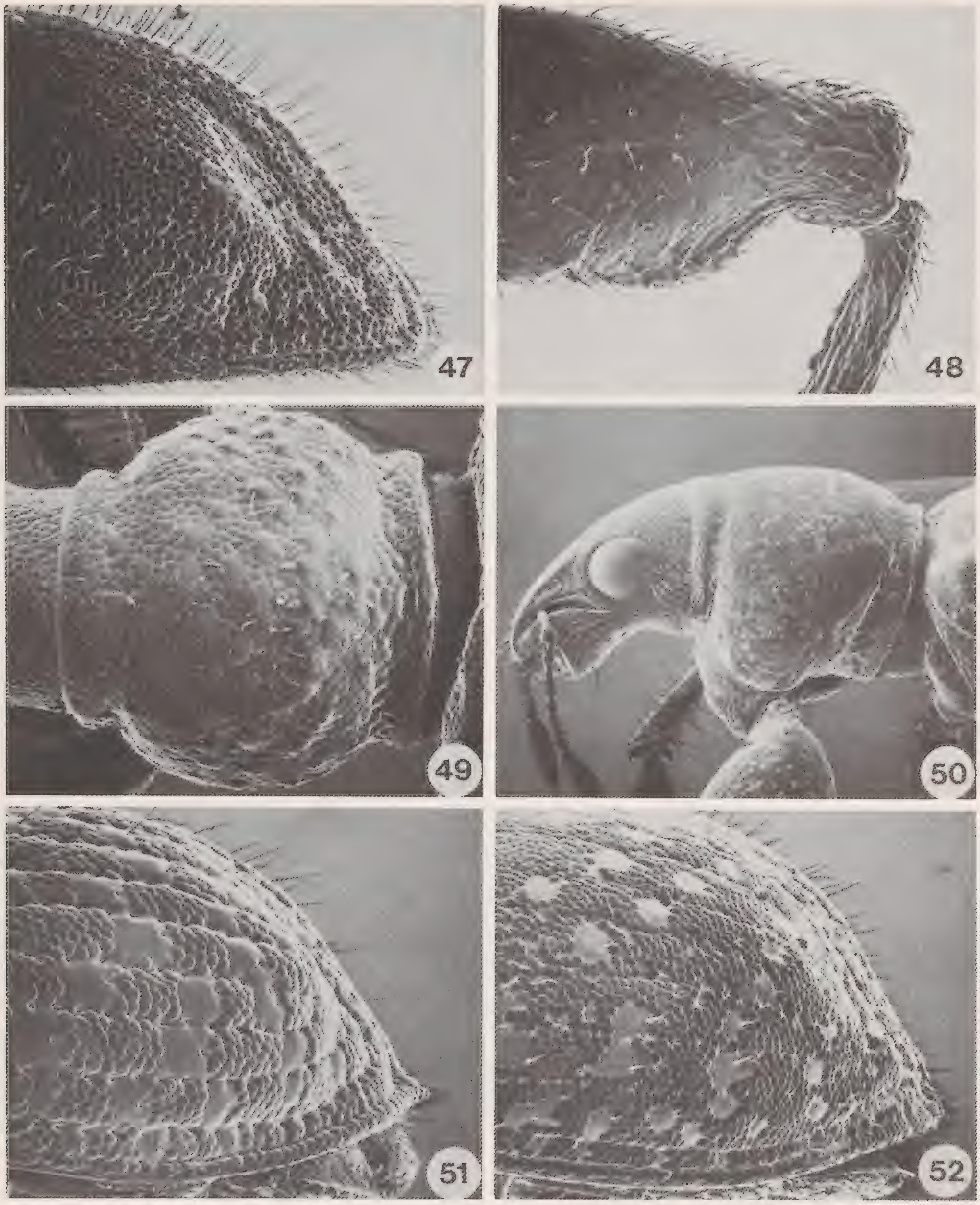
Figs. 26, 28. *H.* (*Hadrorestes*) spp. habitus. 26, *alacer*, female, dorsal. 28, *dialeucus*, female, dorsal.



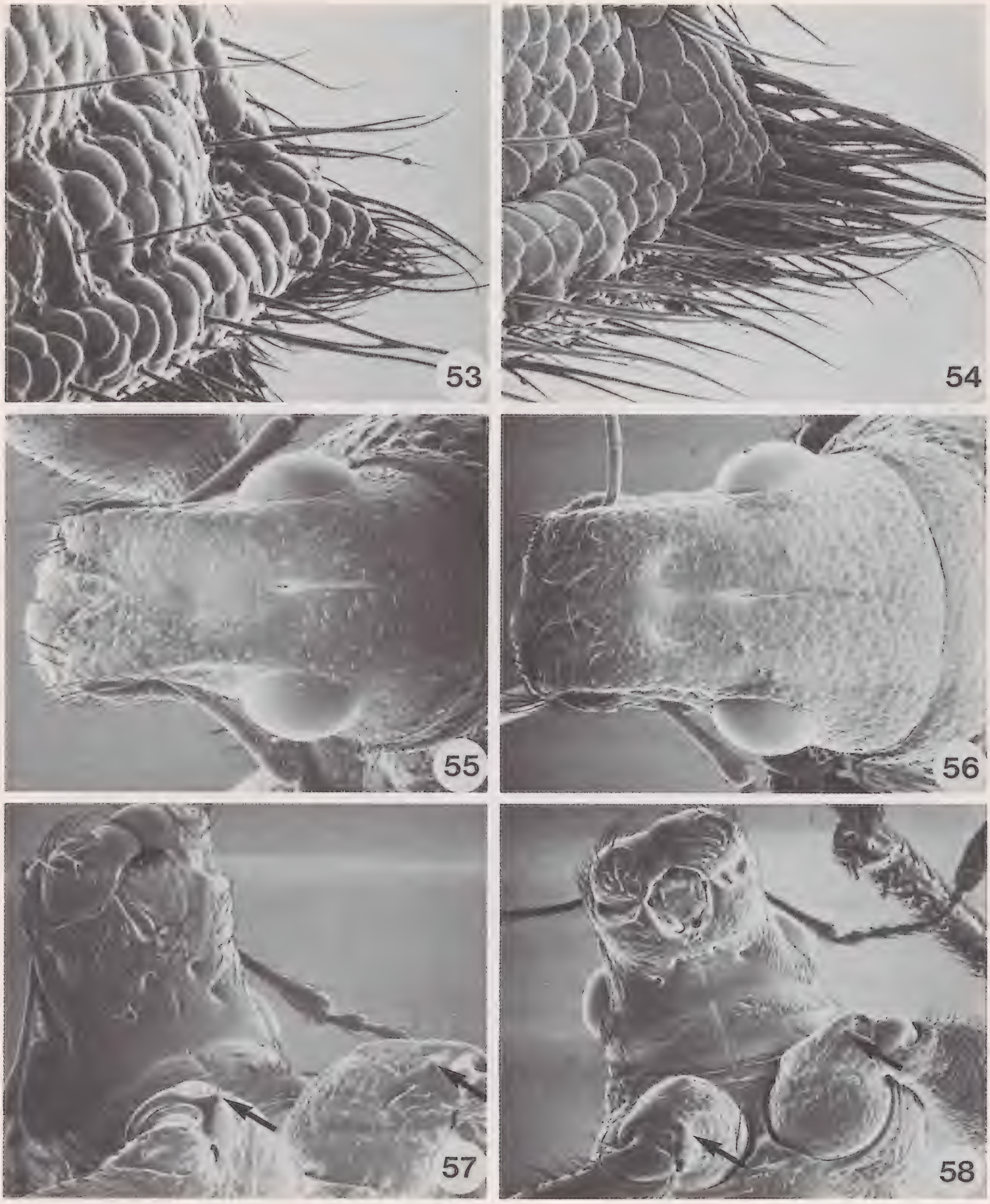
Figs. 29-38. *H.* (*Hadrorestes*) spp. habitus. 29, *institulus*, female. 30, *apicalis*, female. 31, *picchuensis*, female. 32, *scambus*, female. 33, *transandinus*, male. 34, *conquisitus*, female. 35, *pectinatus*, male. 36, *magicus*, male. 37, *contractus*, female. 38, *spiculatus*, male.



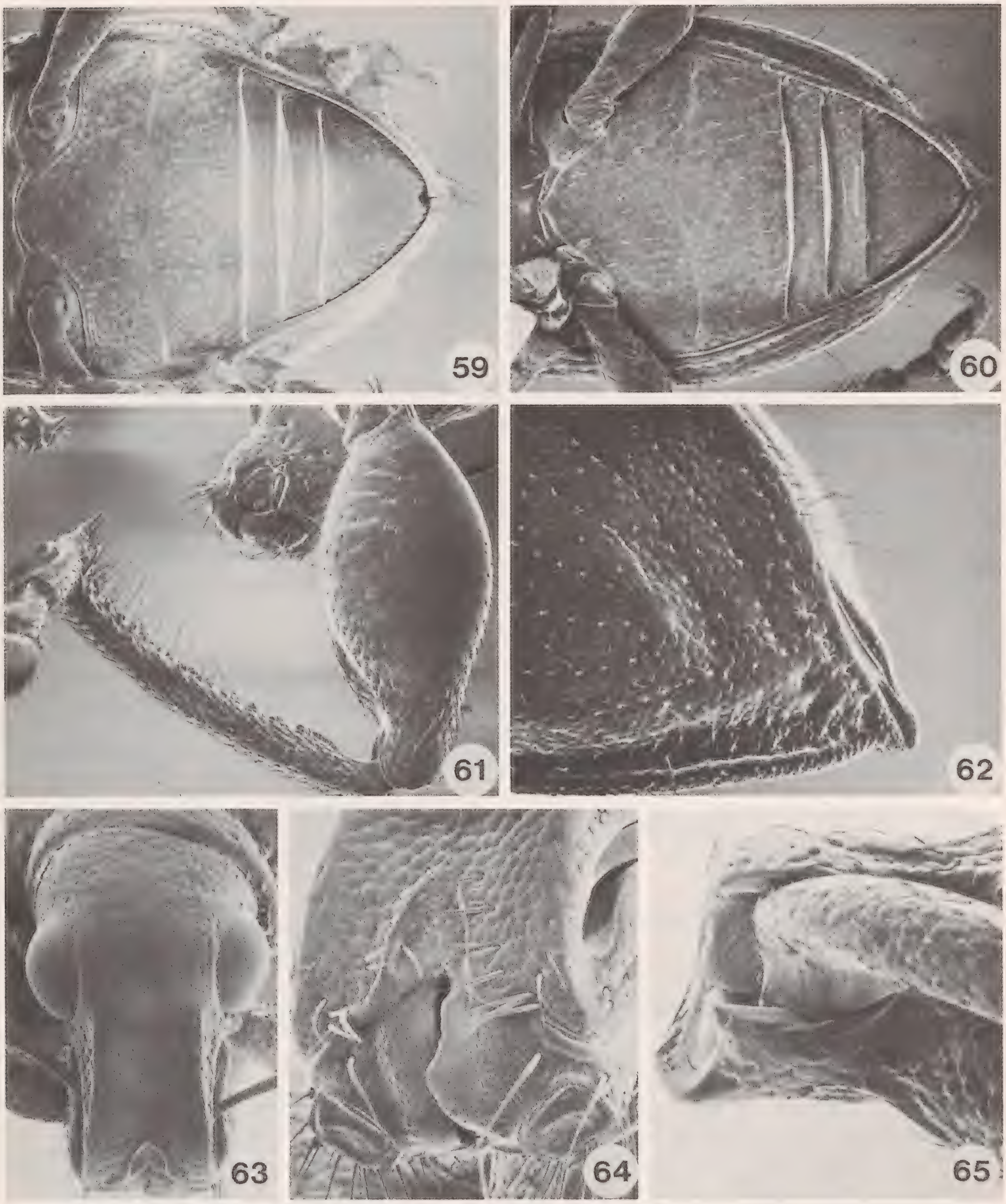
Figs. 39-46. *H.* (*Hadromeropsis*) spp. 39, *opalinus*, female, head, lateral view. 40, *crinitus*, male, head, lateral view. 41, *fulgens*, male, head, anterior view. 42, *crinitus*, male, head, anterior view. 43, *crinitus*, male, epistoma. 44, *dejeanii*, male, head, anterior view. 45, *flagellatus*, male, head, anterior view. 46, *fulgens*, male, epistoma.



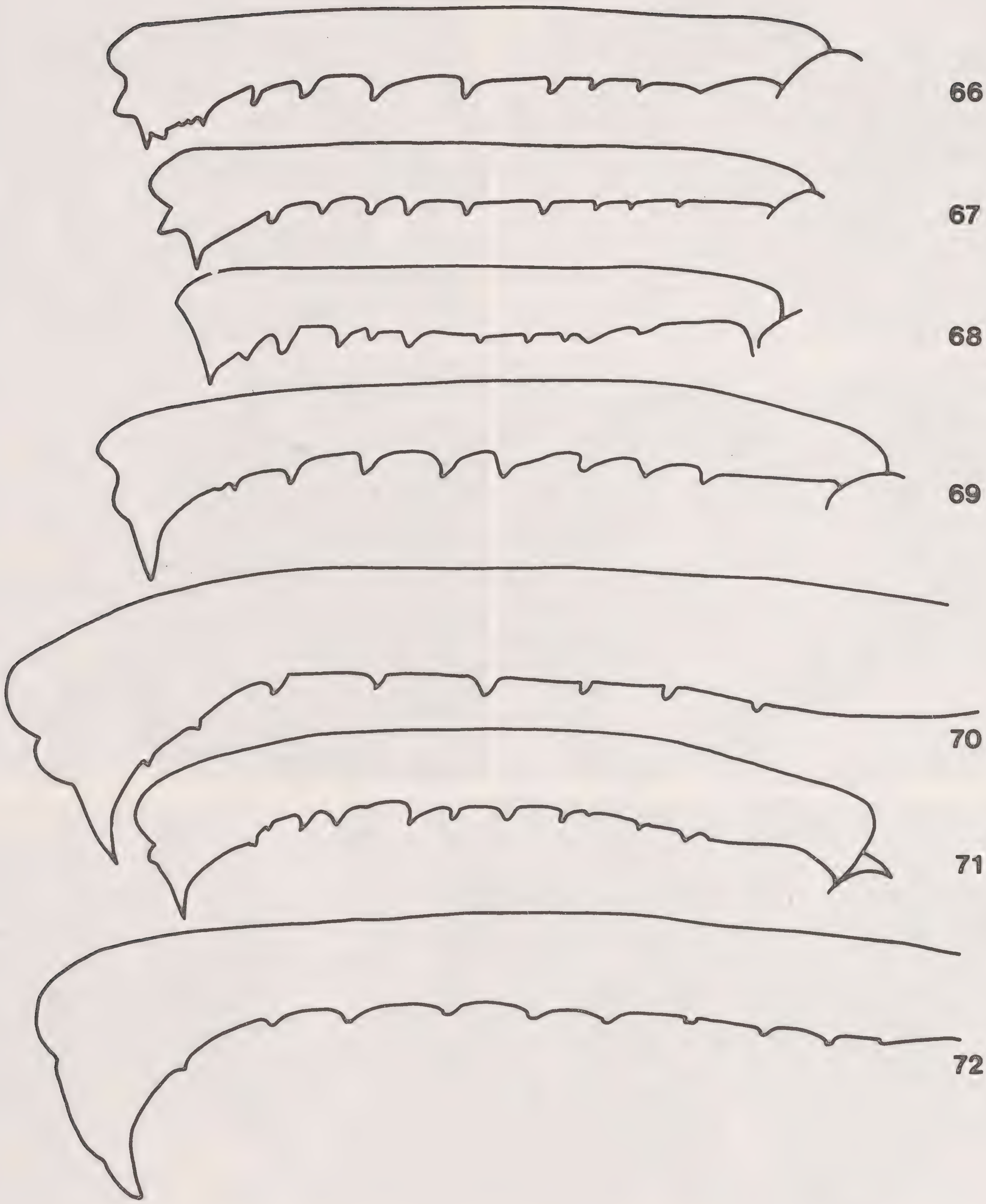
Figs. 47-52. H. (Hadromeropsis) spp. 47, crinitus, male, apex of elytra. 48, flagellatus, male, femoral flange. 49, aureus, male, prothorax, dorsal view. 50, cretatus, male, head and prothorax, lateral view. 51, aureus, male, apex of elytra, lateral view. 52, cretatus, male, apex of elytra, lateral view.



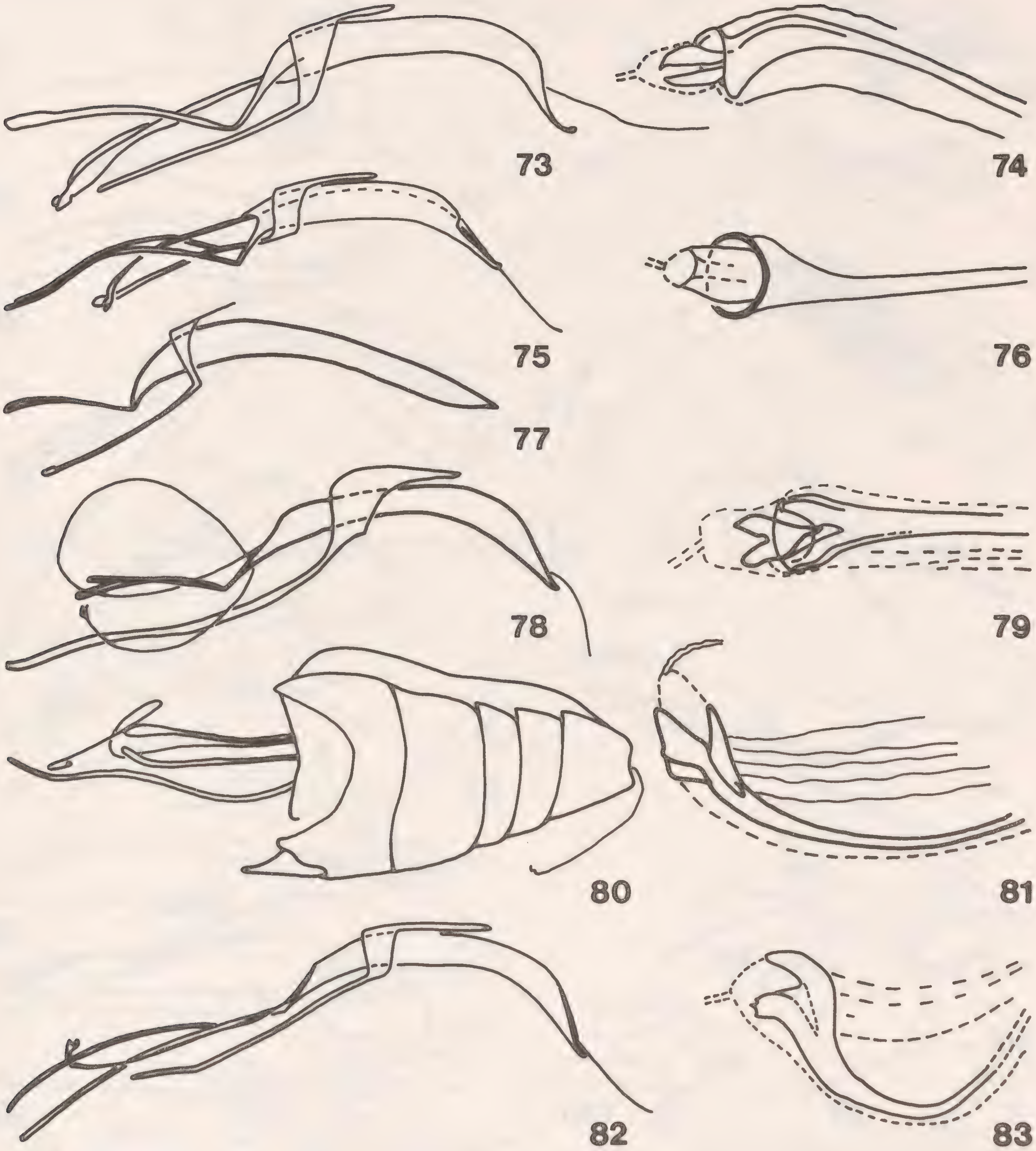
Figs. 53-58. *H.* (*Hadromeropsis*) spp. 53, *aureus*, male, apex of elytra, lateral view. 54, *cretatus*, female, apex of elytra, lateral view. 55-58, *gemmifer*: 55, male, head, anterior view; 56, female, head, anterior view; 57, male, coxal tubercle; 58, female, coxal tubercle.



Figs. 59-65. *H.* (*Hadromeropsis*) spp. 59, *gemmifer*, female, abdomen; 60, *meridianus*, female, abdomen. 61, *gemmifer*, male, fore leg, ventral view. 62, *rufipes*, female, apex of elytra, lateral view. 63-65, *batesi*, male: 63, head, anterior view: 64, apex of rostrum; 65, distal end fore femur.



Figs. 66-72. H. (Hadromeropsis) spp. fore tibia. 66, fulgens, male, Cuernavaca. 67, opalinus, male, Durango. 68, flagellatus, male, Apizaco. 69, scintillans, male, lectotype, Quiche Mts. 70, micans, female, lectotype. 71, dejeanii, male, Playa Vicente. 72, rufipes, female, type.



Figs. 73-83. *H.* (*Hadromeropsis*) spp. male genitalia. 73, *fulgens*, aedeagus with flagellum atypical paralectotype from Amula. 74-76, *opalinus*: 74**, proximal end of flagellum, lateral view; 75, aedeagus with flagellum; 76**, proximal end of flagellum, ventral view. 77, *crinitus*, aedeagus. 78-81, *flagellatus*: 78, aedeagus with flagellum; 79**, proximal end of flagellum, ventral view; 80, genitalia in normal position in abdomen, thorax removed; 81**, proximal end of flagellum, lateral view. 82-83, *dejeanii*: 82, aedeagus with flagellum; 83**, proximal end of flagellum, lateral view.

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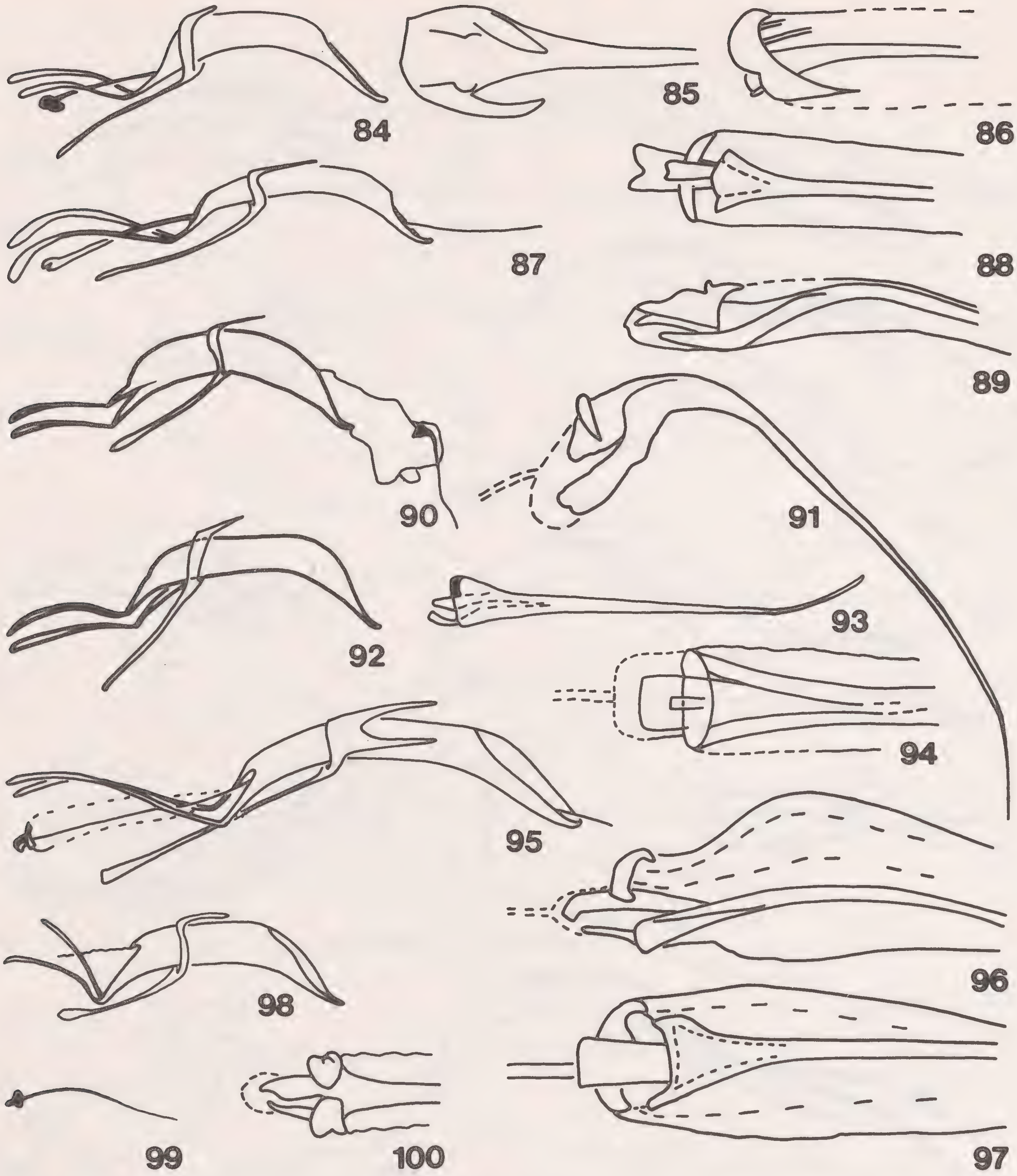

Figs. 84-100. *H.* (*Hadromeropsis*) spp. male genitalia. 84-86, *amoenus*: 84, aedeagus with flagellum; 85**, proximal end of flagellum, ventral view; 86**, as 85, lateral view. 87-89, *scintillans*: 87, aedeagus with flagellum; 88**, proximal end of flagellum, ventral view; 89**, as 88, lateral view. 90-91, *brevicomus*: 90, aedeagus with internal sac extruded; 91**, flagellum. 92-94, *aureus*: 92, aedeagus; 93*, flagellum; 94**, proximal end of flagellum ventral view. 95-97, *cretatus*: 95, aedeagus with flagellum; 96**, proximal end of flagellum, lateral view; 97**, as 96, ventral view. 98-100, *superbus*: 98, aedeagus; 99, flagellum; 100**, proximal end of flagellum, lateral view.

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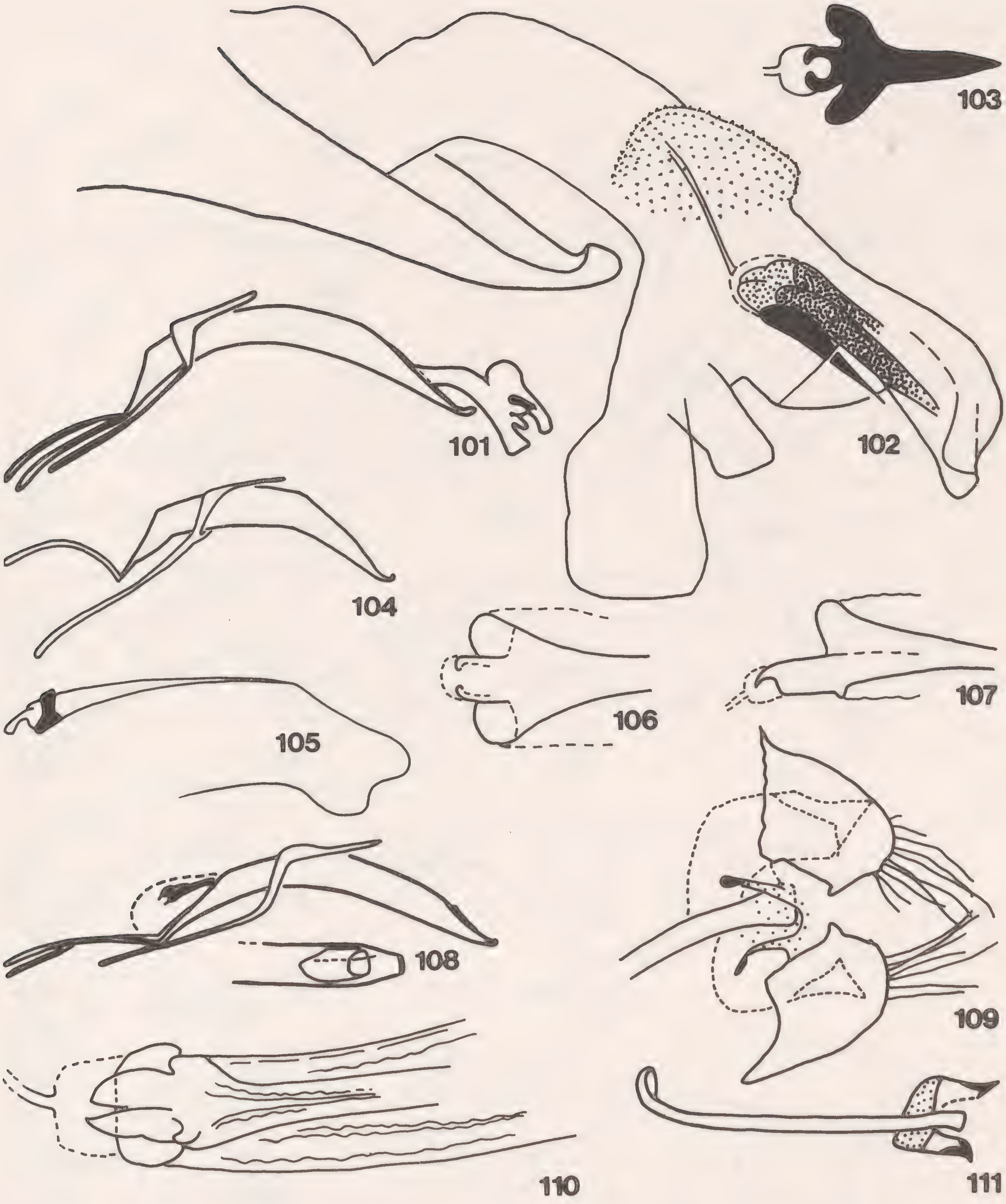

Figs. 101-111. *H.* (*Hadromeropsis*) spp. male genitalia. 101-103, *gemmifer*: 101, aedeagus; 102**, internal sac; 103**, "flagellum", ventral view. 104-107, *meridianus*: 104, aedeagus; 105*, flagellum; 106**, proximal end of flagellum, ventral view; 107**, proximal end of flagellum, lateral view. 108-111, *batesi*: 108, aedeagus and dorsal view of apex; 109*, sternite 8, ventral view; 110**, proximal end of flagellum, ventral view; 111, spiculum gastrale.

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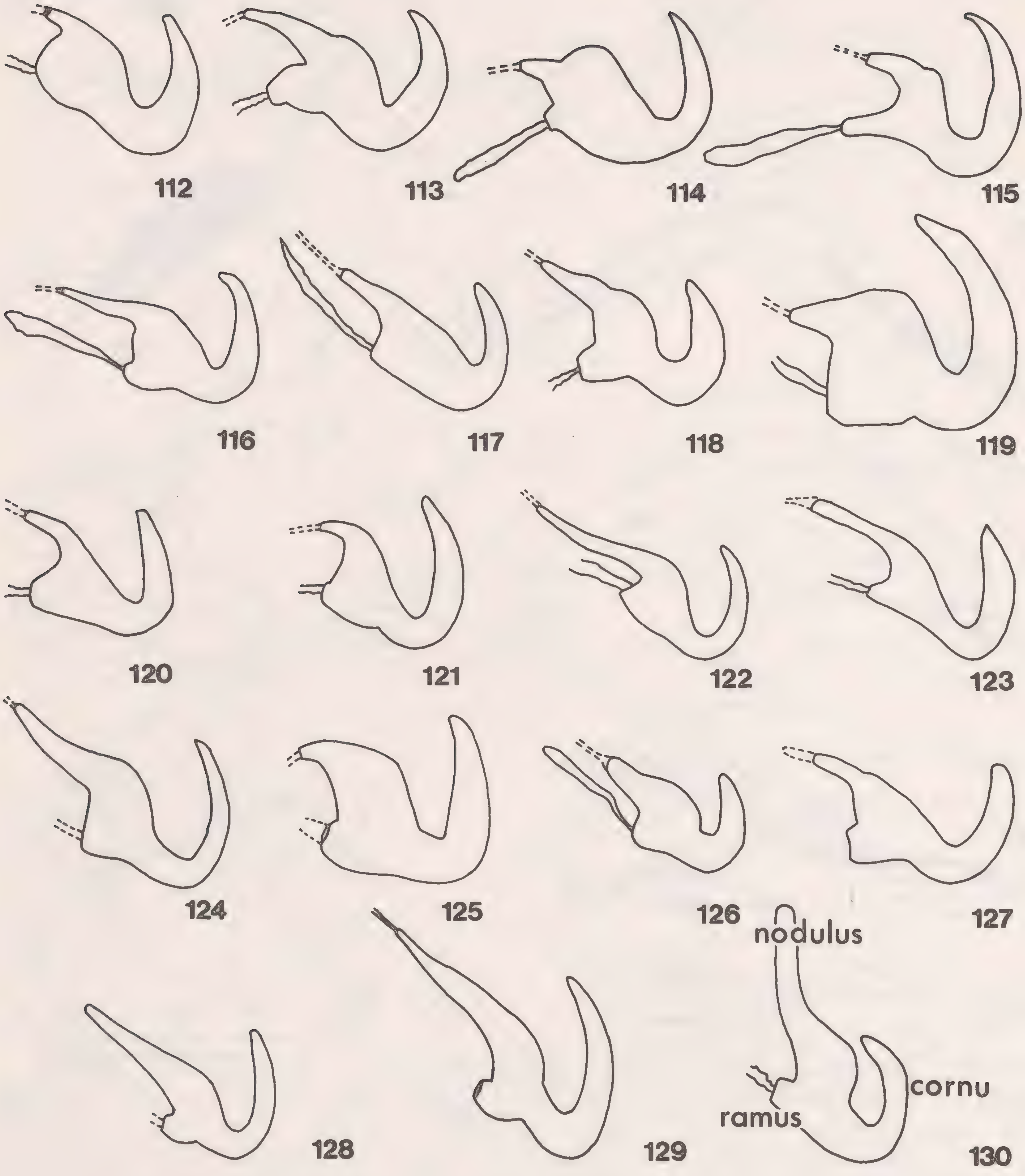
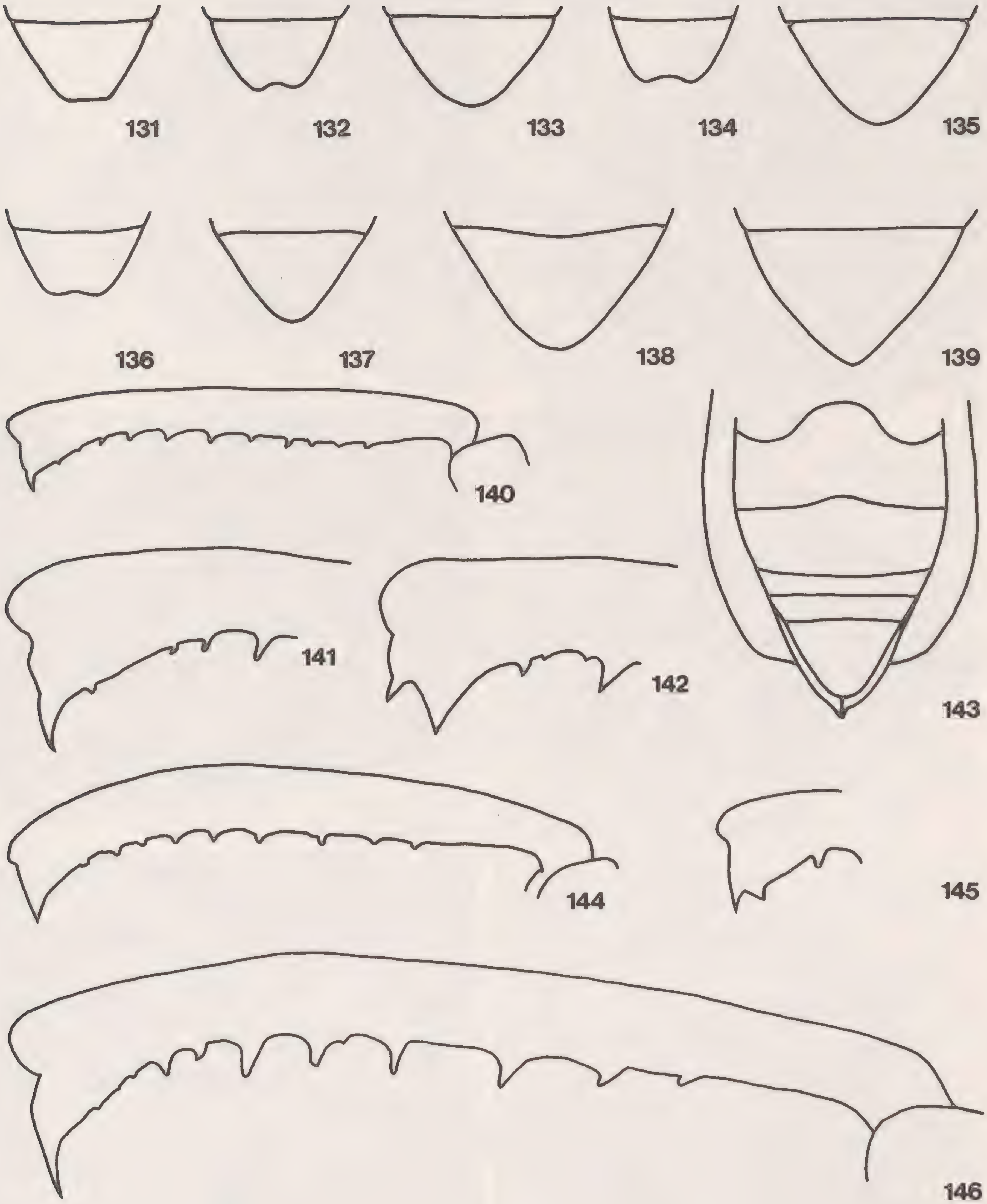
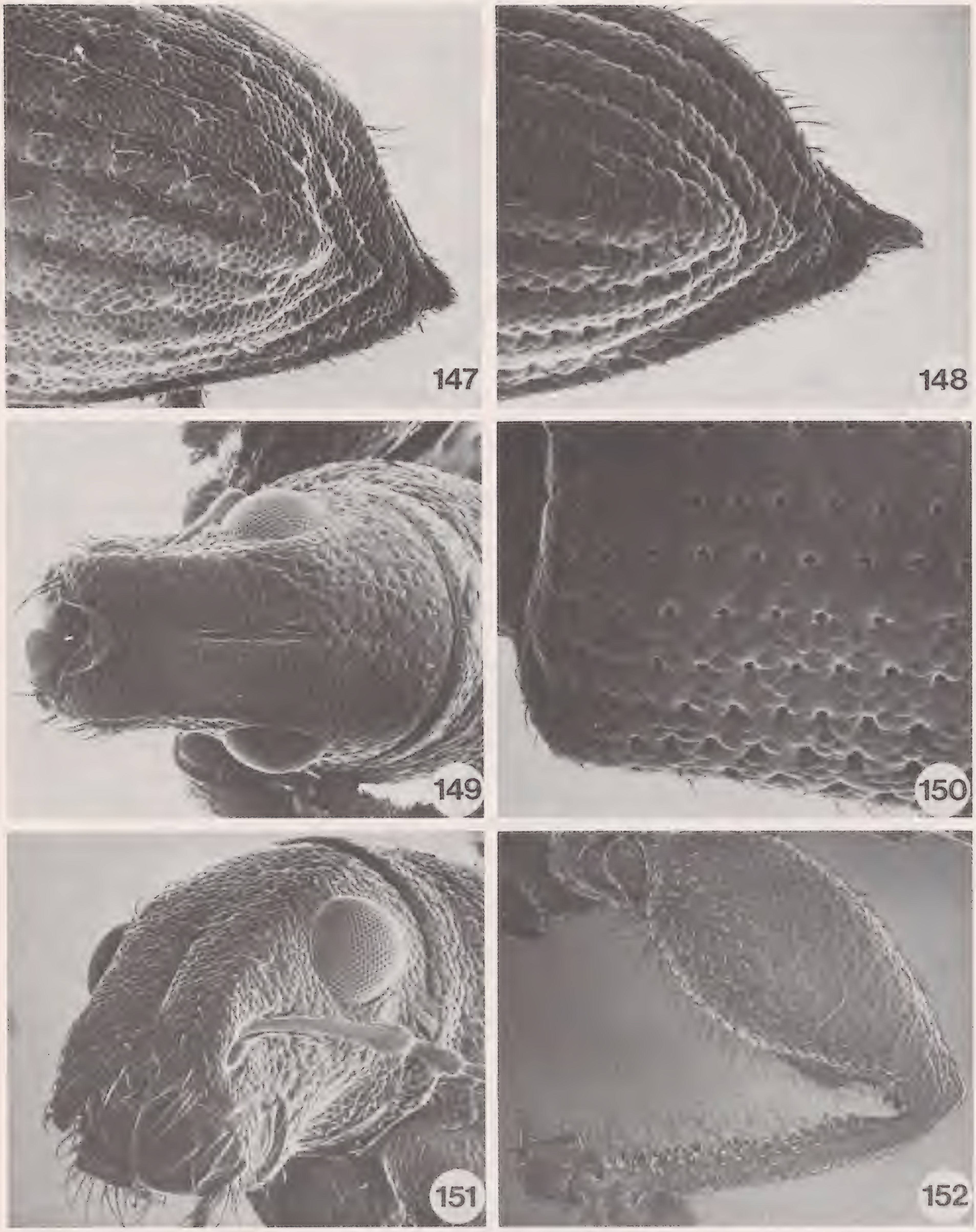


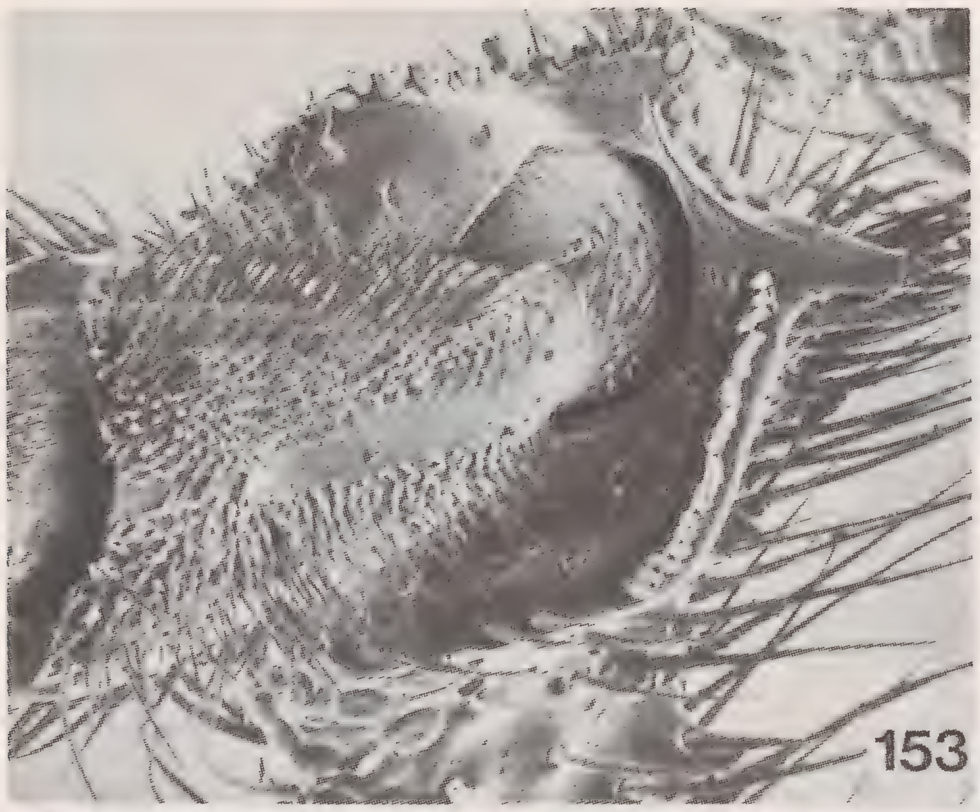
Figs. 112-130. H. (Hadromeropsis) spp. spermatheca. 112, opalinus. 113-115, flagellatus. 116, fulgens. 117, crinitus. 118, dejeanii. 119, micans. 120, scintillans. 121, amoenus. 122-123, brevicomus. 124, aureus. 125, cretatus. 126, superbus. 127, gemmifer. 128-129, meridianus. 130, batesi.

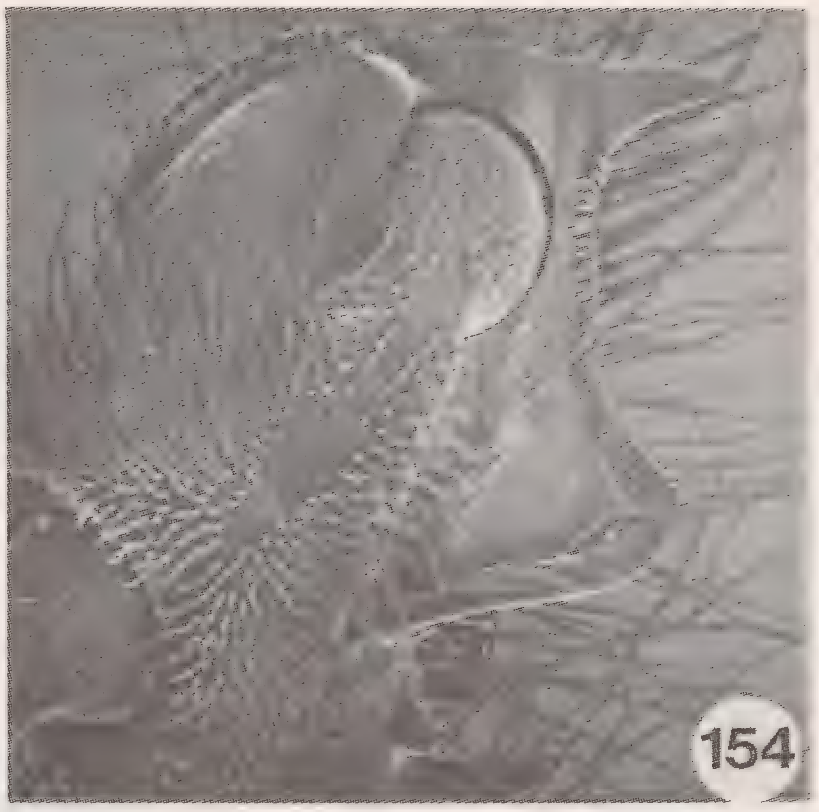


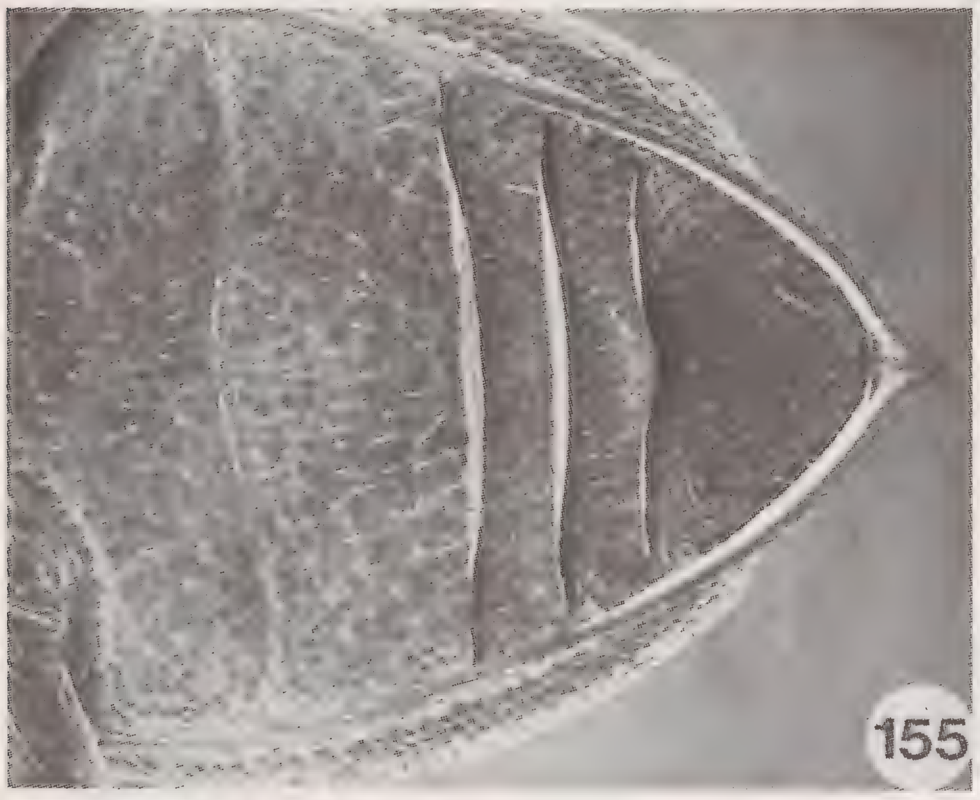
Figs. 131-146. *H.* (*Hadromeropsis*) spp. 131-139, ventrite 5: 131, *crinitus*, male; 132-133, *flagellatus*: 132, male; 133, female; 134, *amoenus*, male; 135, *amoenus*, female; 136, *scintillans*, male; 137, *scintillans*, female; 138, *rufipes*, female; 139, *micans*, female. 140, *speculifer*, male, fore tibia. 141-142, *excubitor*, apex fore tibia: 141, male; 142, female. 143, *speculifer*, female, abdomen. 144-145, *atomarius*, fore tibia: 144, male; 145, apex, female. 146, *fasciatus*, male, fore tibia.

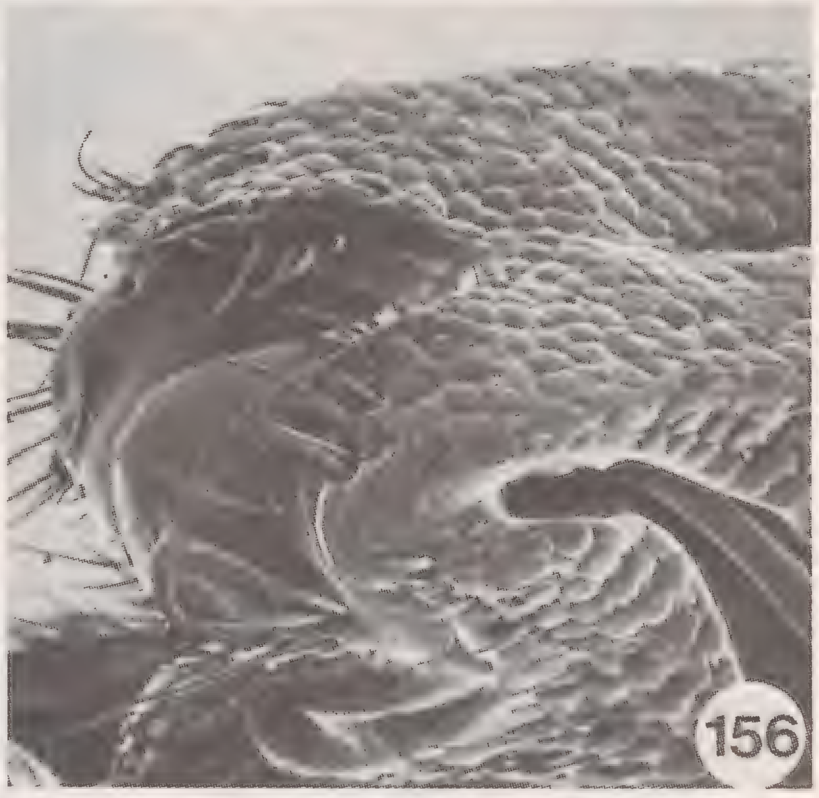


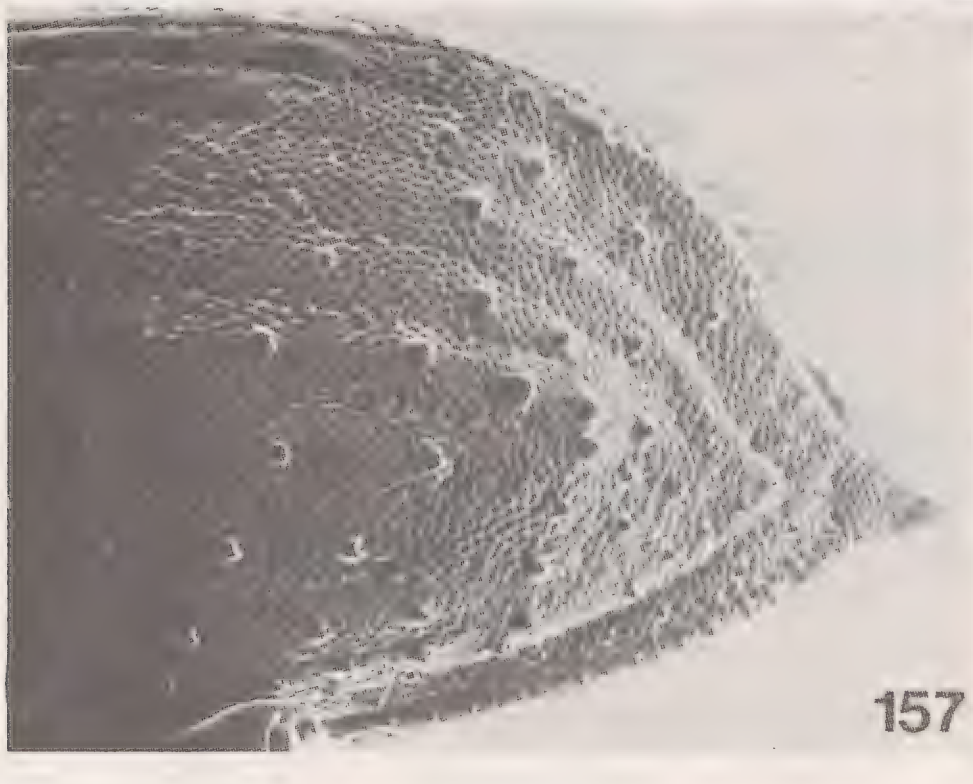
Figs. 147-152. H. (Hadromeropsis) spp. 147, plebeius, female, apex of elytra, lateral view. 148-150, pulverulentus, female: 148, apex of elytra, lateral view; 149, head, anterior view; 150, base of elytra, dorsal view. 151, pallidus, male, rostrum, oblique view. 152, beverlyae, male, fore leg, posterior view.

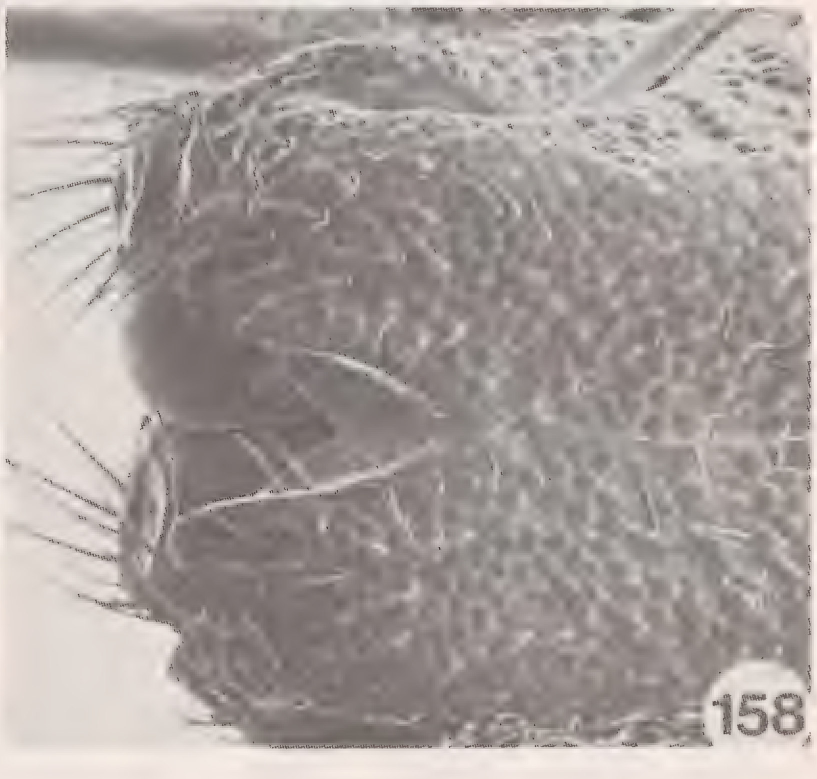




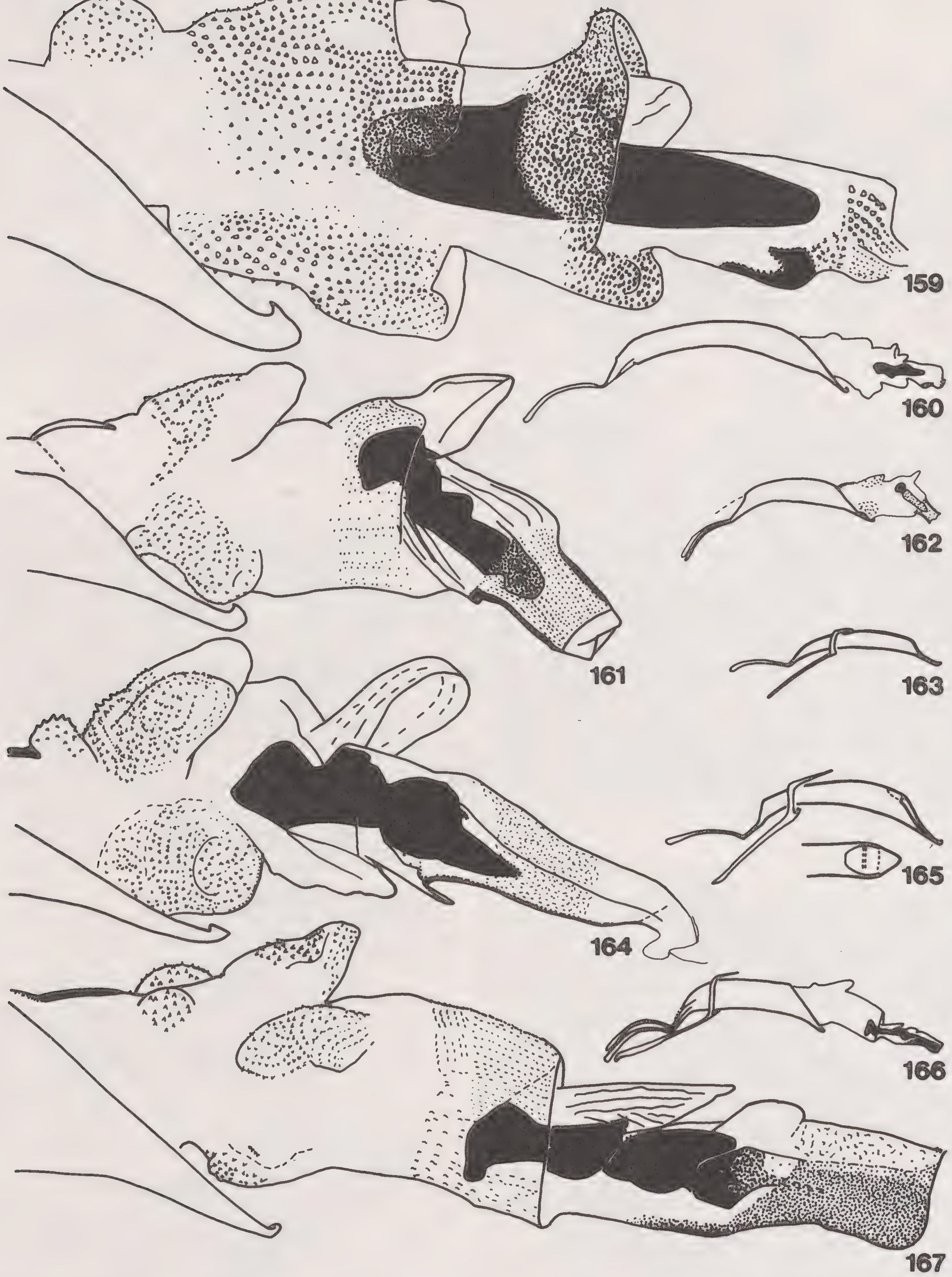








Figs. 153-158. *H.* (*Hadromeropsis*) spp. 153, *opalinus*, male, apex fore tibia. 154, *beverlyae*, male, apex fore tibia. 155, *atomarius*, female, abdomen. 156, *beverlyae*, male, rostrum. 157-158, *fasciatus*, female: 157, apex of elytra, lateral view; 158, apex of rostrum, dorsal view.



Figs. 159-167. H. (Hadromeropsis) spp. male genitalia. 159-160, togatus: 159**, internal sac; 160, aedeagus. 161-162, argentinensis: 161**, internal sac; 162, aedeagus. 163, pulverulentus, aedeagus. 164-165, plebeius: 164**, internal sac; 165, aedeagus. 166-167, pallidus: 166, aedeagus; 167**, internal sac.

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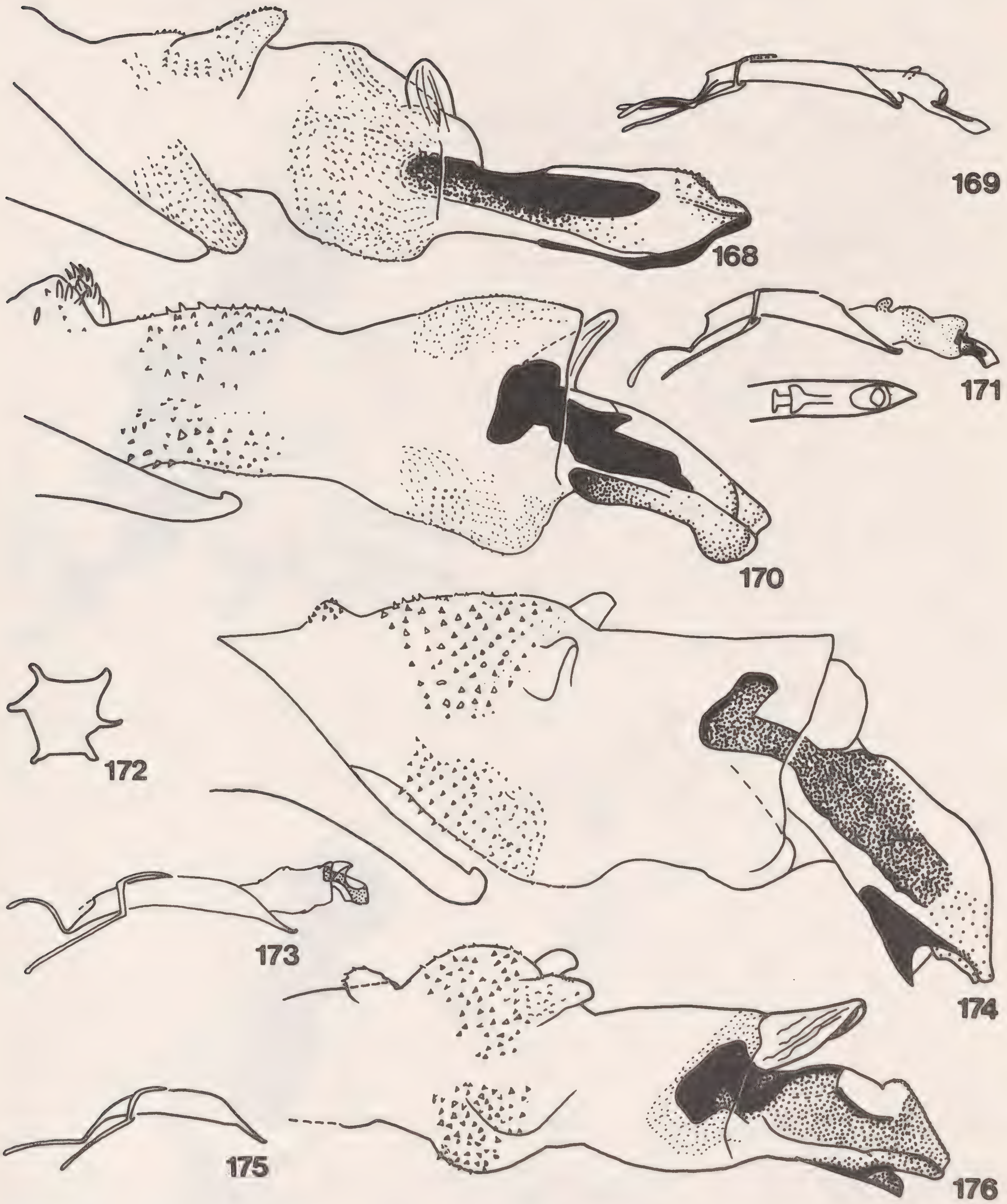

Figs. 168-176. H. (Hadromeropsis) spp. male genitalia and rectal ring. 168-169, speculifer: 168**, internal sac; 169, aedeagus. 170-171, beverlyae: 170**, internal sac; 171, aedeagus in lateral view and apex in dorsal view. 172*, flagellatus, rectal ring. 173-174, nobilitatus: 173, aedeagus; 174**, internal sac. 175-176, atomarius: 175, aedeagus; 176**, internal sac.

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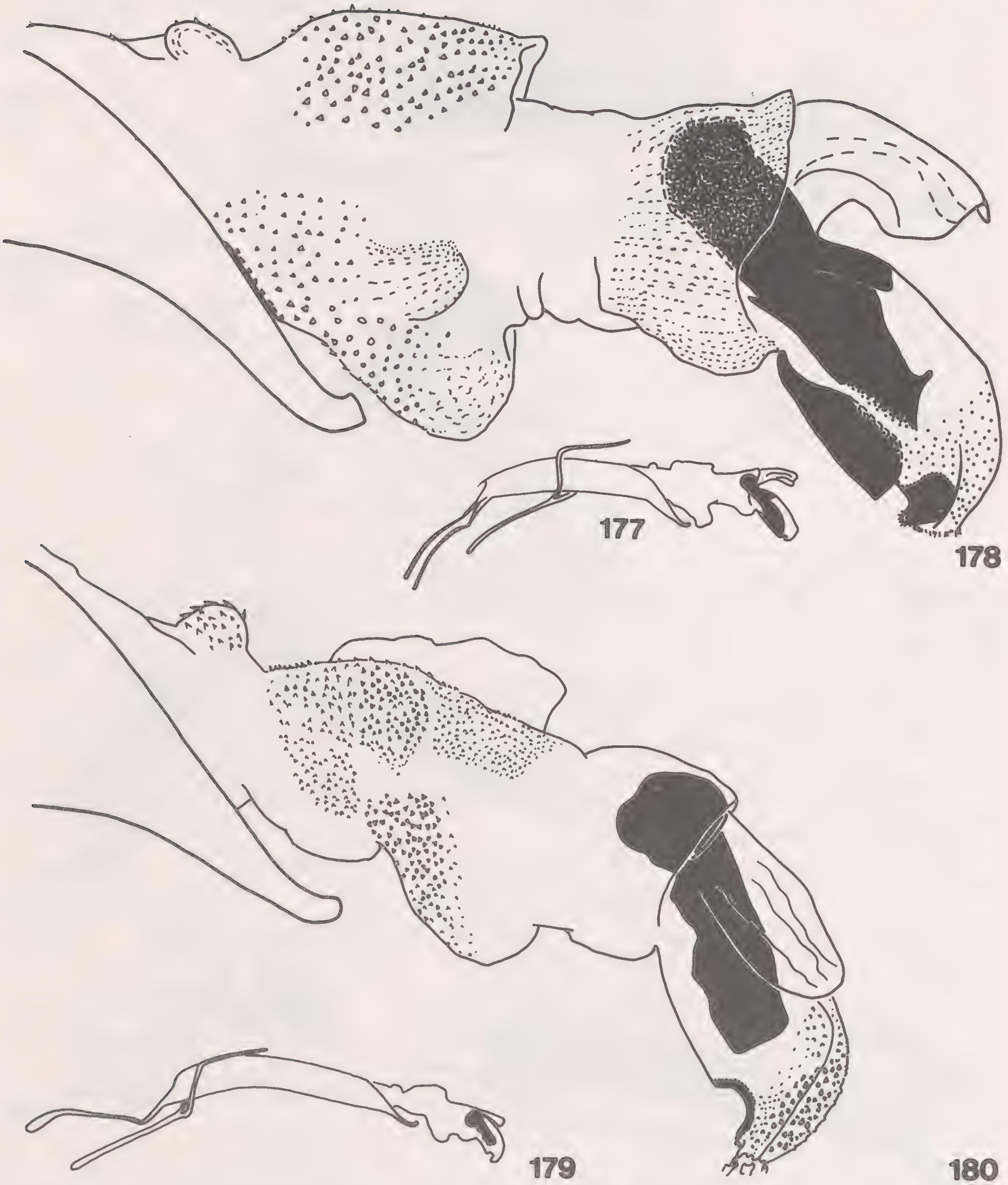

Figs. 177-180. H. (Hadromeropsis) spp. male genitalia. 177-178, excubitor: 177, aedeagus; 178**, internal sac. 179-180, fasciatus: 179, aedeagus; 180**, internal sac.
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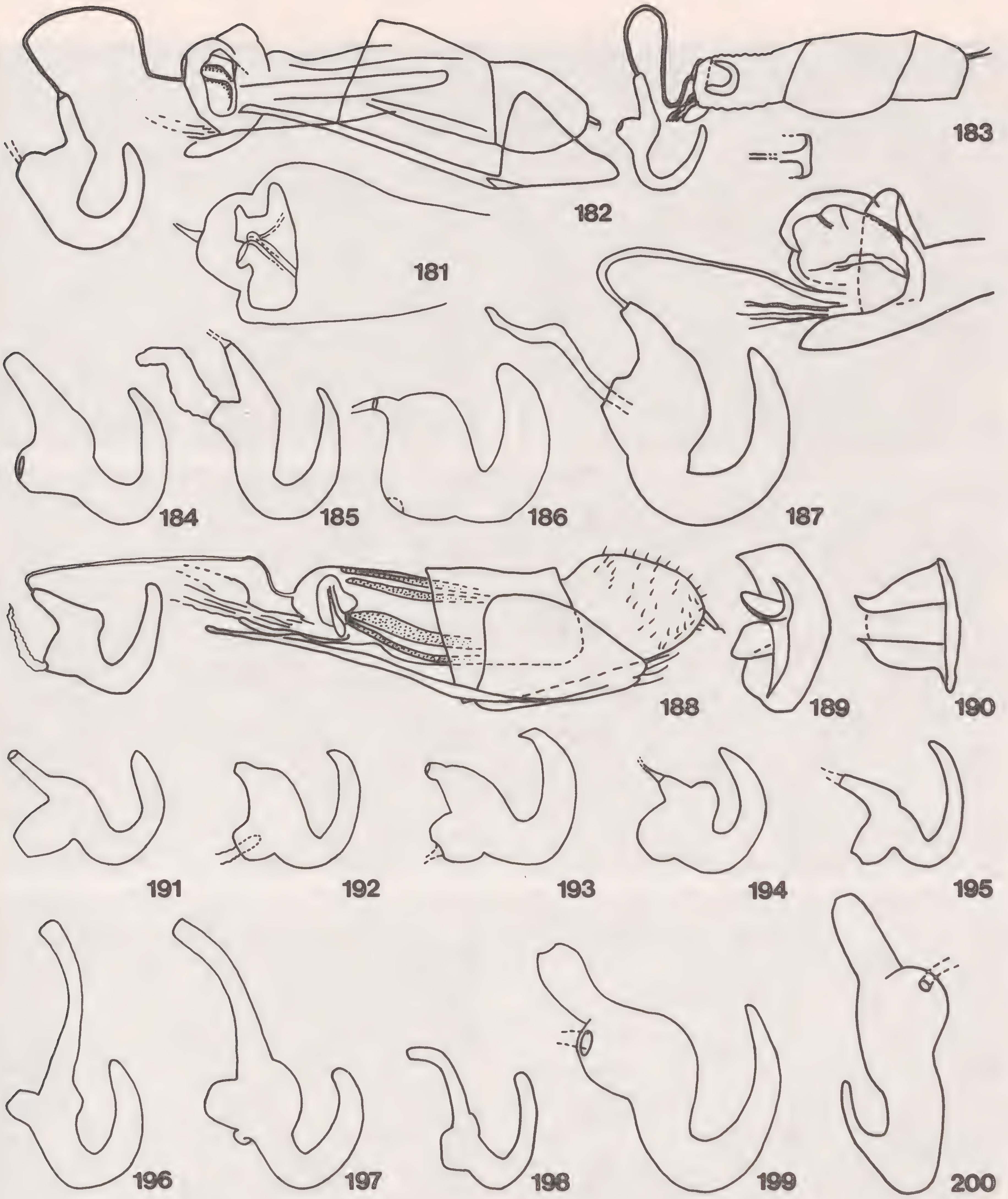

Figs. 181-200. H. (Hadromeropsis) spp. female genitalia. 181-182, argentinensis: 181*, bursal sclerite, ventral view; 182, genitalia, setae omitted. 183, pulverulentus, genitalia, setae omitted, including ventral view of bursal sclerite. 184, togatus, spermatheca. 185, speculifer, spermatheca. 186, plebeius, spermatheca. 187, pallidus, spermatheca. 188-190, beverlyae: 188, genitalia; 189*, bursal sclerite, oblique view; 190*, bursal sclerite, dorsal view. 191, nobilitatus, spermatheca. 192-194, "smooth" nobilitatus, spermatheca, three examples of variation. 195, atomarius, spermatheca. 196-198, excubitor, spermatheca, three examples of variation. 199-200, fasciatus, spermatheca, lateral and edge views.

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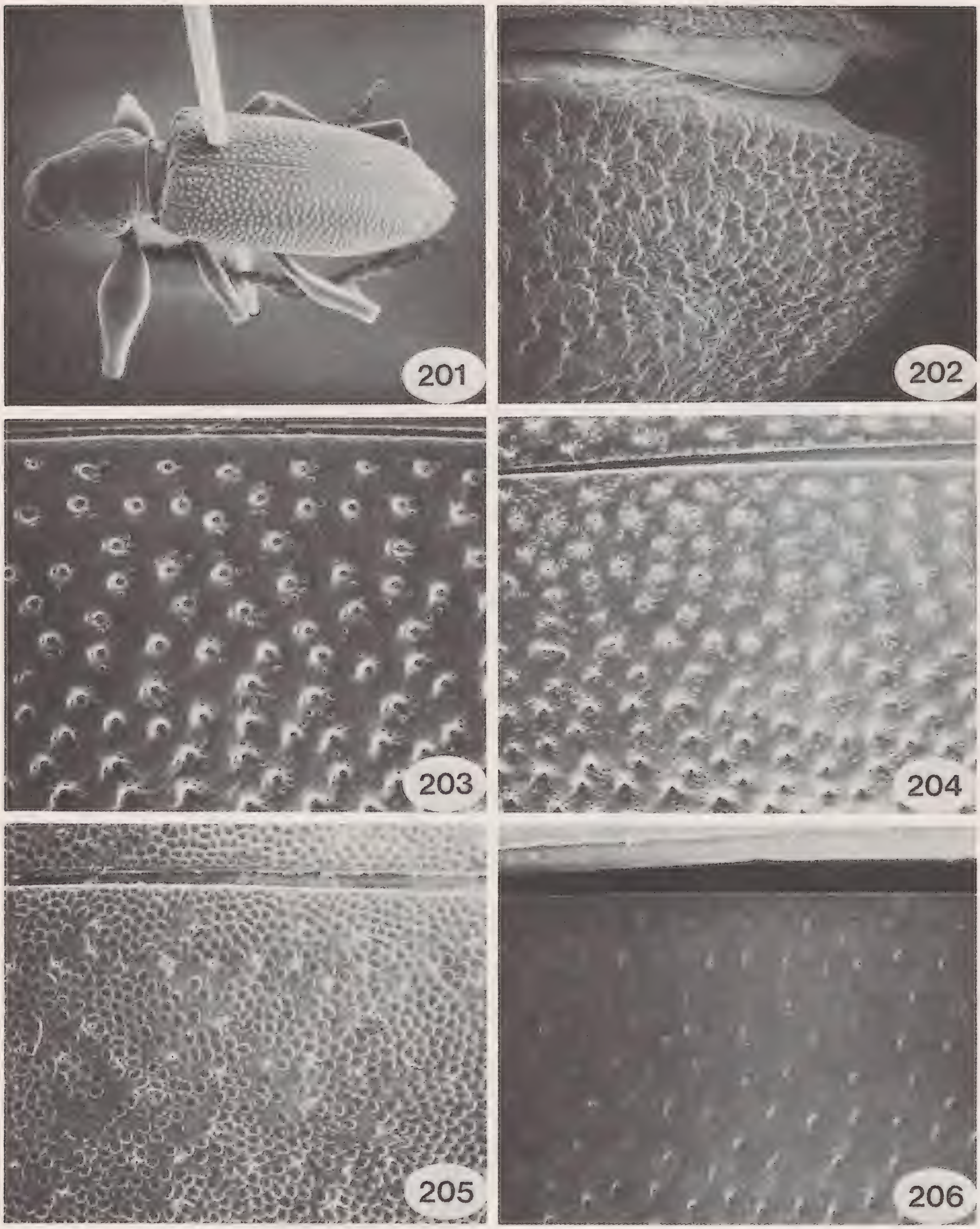
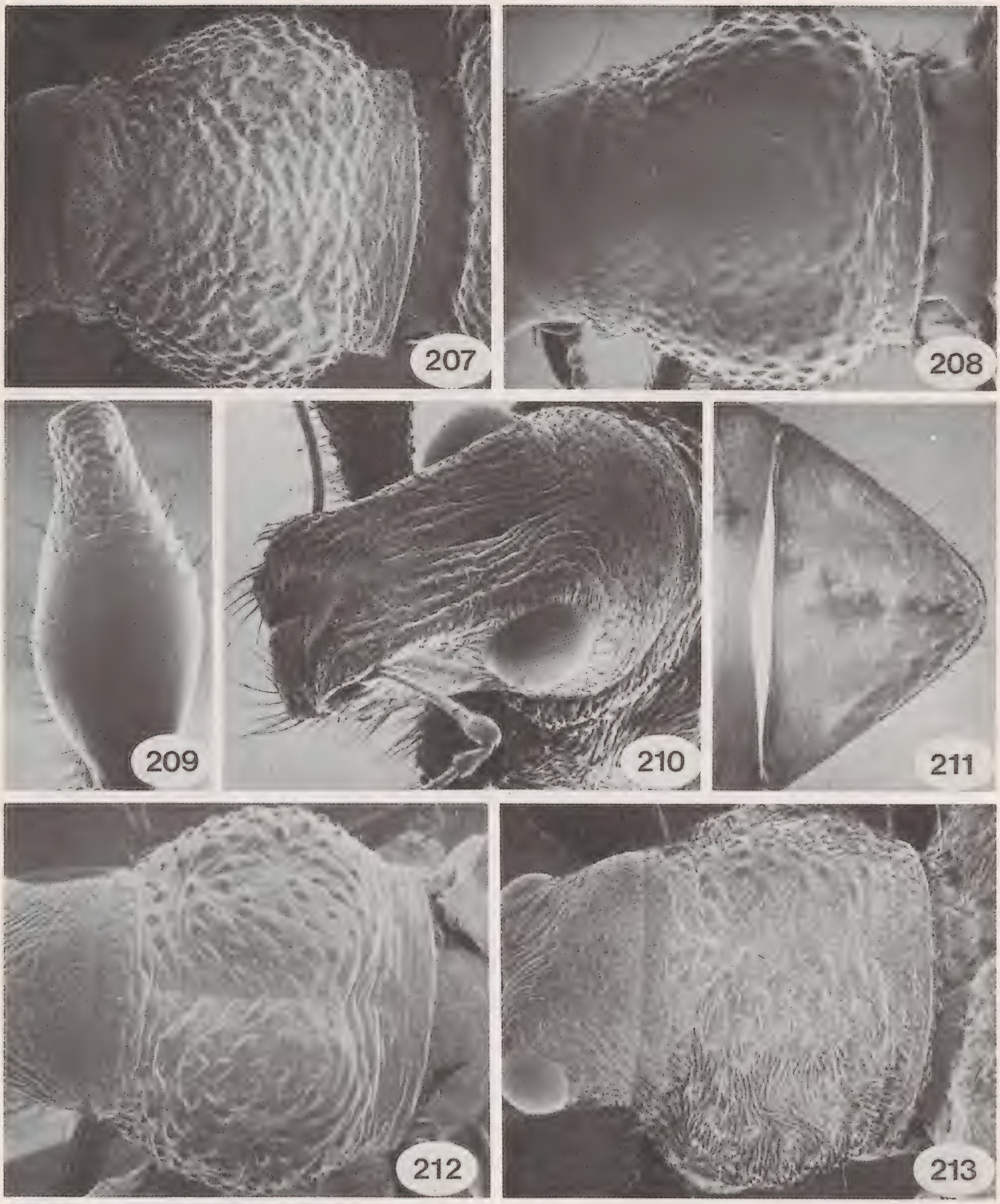
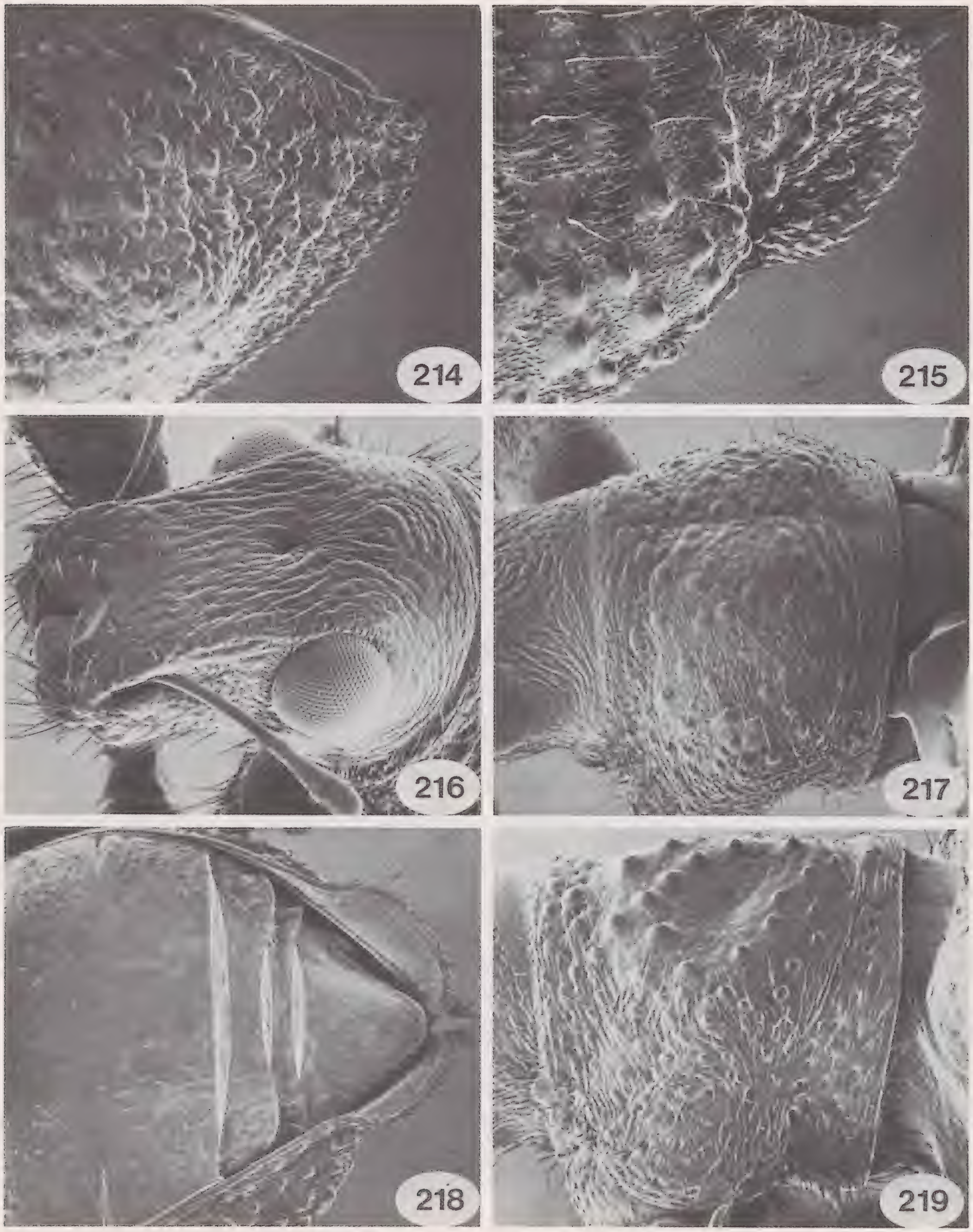


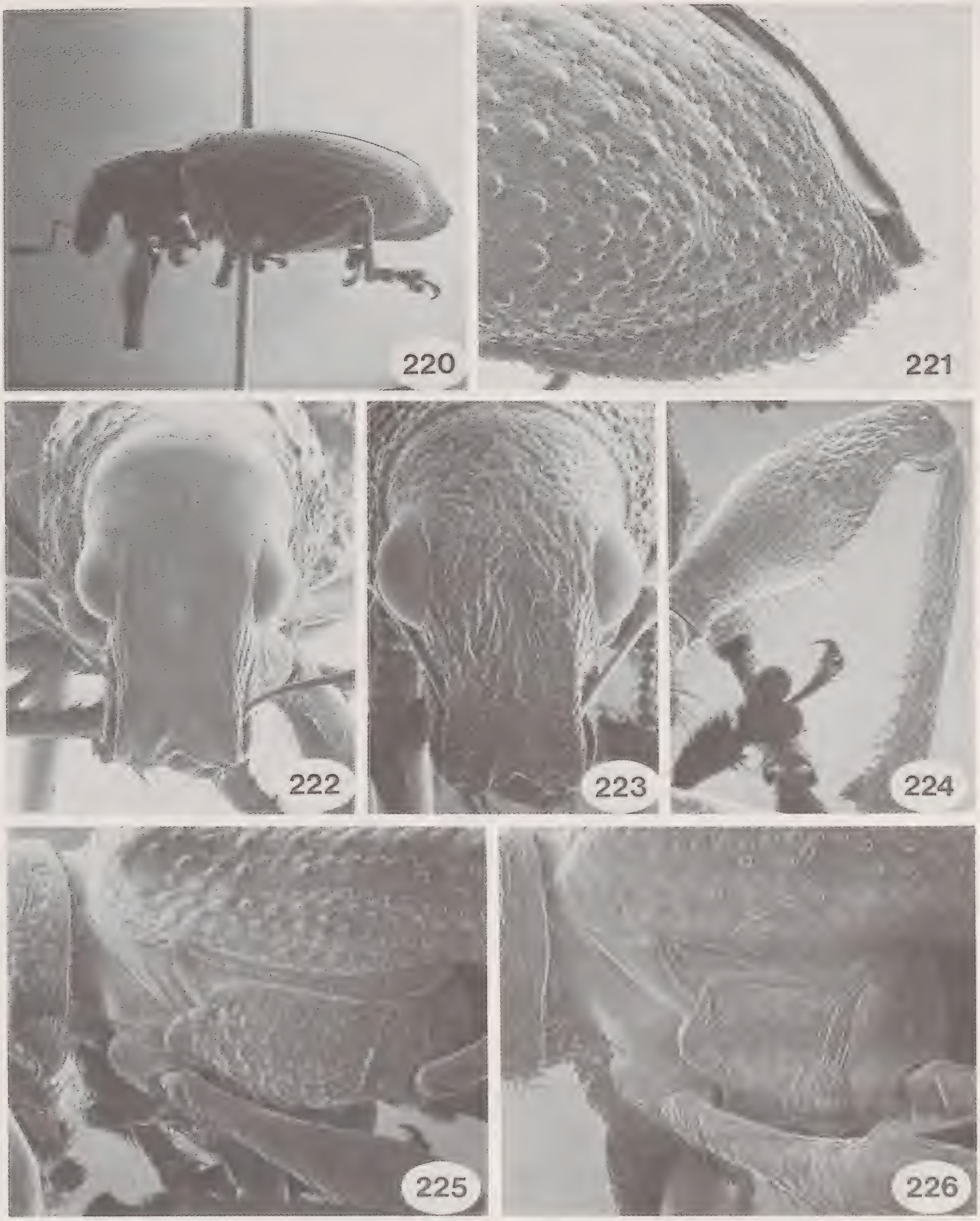
Figs. 201-206. H. (Hadrorestes) spp. 201-203, alacer, male: 201, dorsal habitus, paratype from Baeza; 202, apex of elytra, type, dorsal view; 203, elytral sculpture at suture medially, paratype from Baeza. 204, inconscriptus, female, elytral sculpture at suture medially. 205, nebulicolus, female, elytral sculpture at suture medially. 206, silaceus, male, elytral sculpture at suture medially.



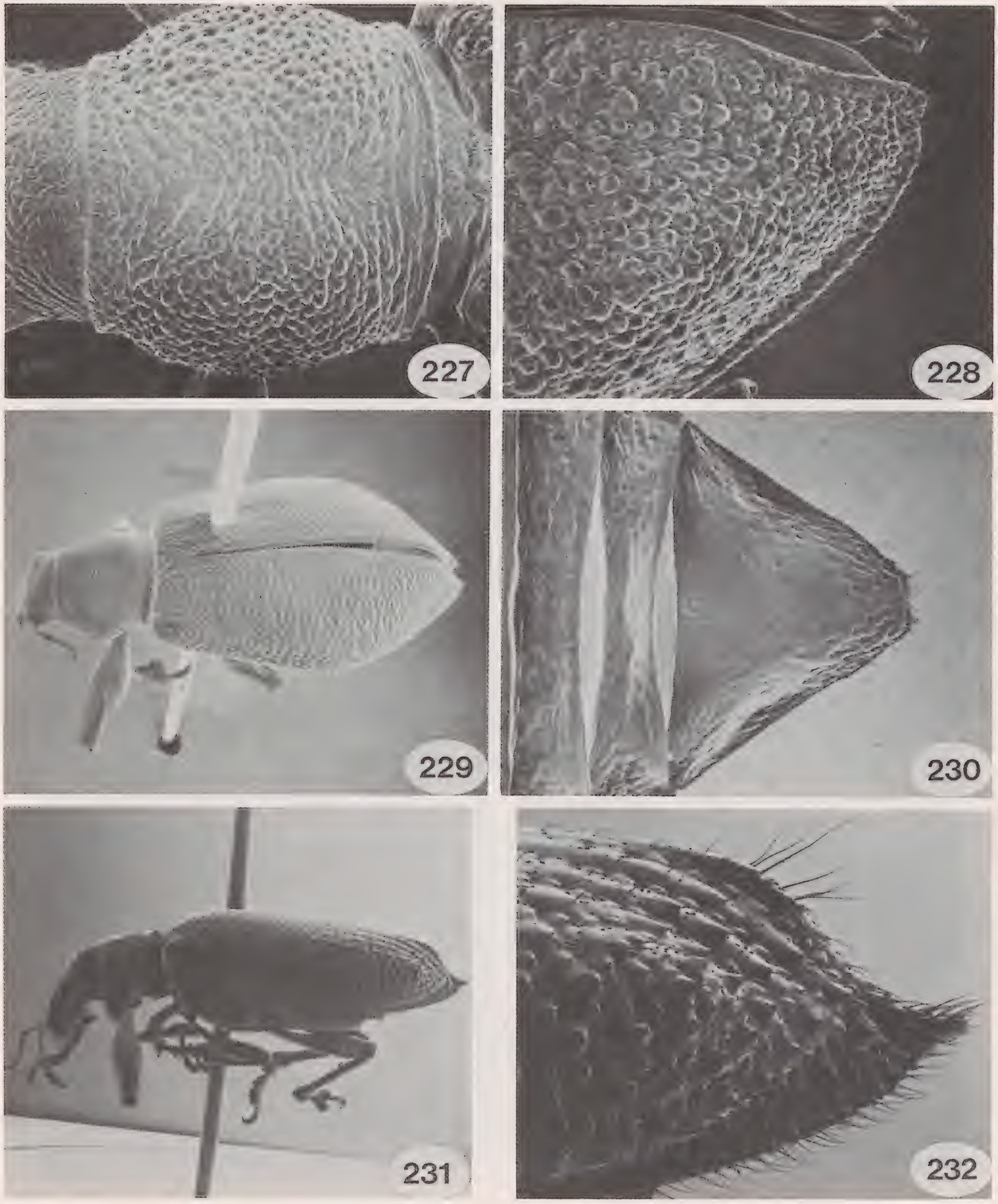
Figs. 207-213. *H.* (*Hadrorestes*) spp. 207-209, *alacer*: 207, prothorax, dorsal view, type; 208, prothorax, dorsal view, male from Baeza; 209, fore femur, outer edge, male from Baeza. 210-213, *impressicollis*: 210, female, head, antero-lateral view; 211, ventrite 5, female; 212, prothorax, dorsal view, male; 213, prothorax, dorsal view, female.



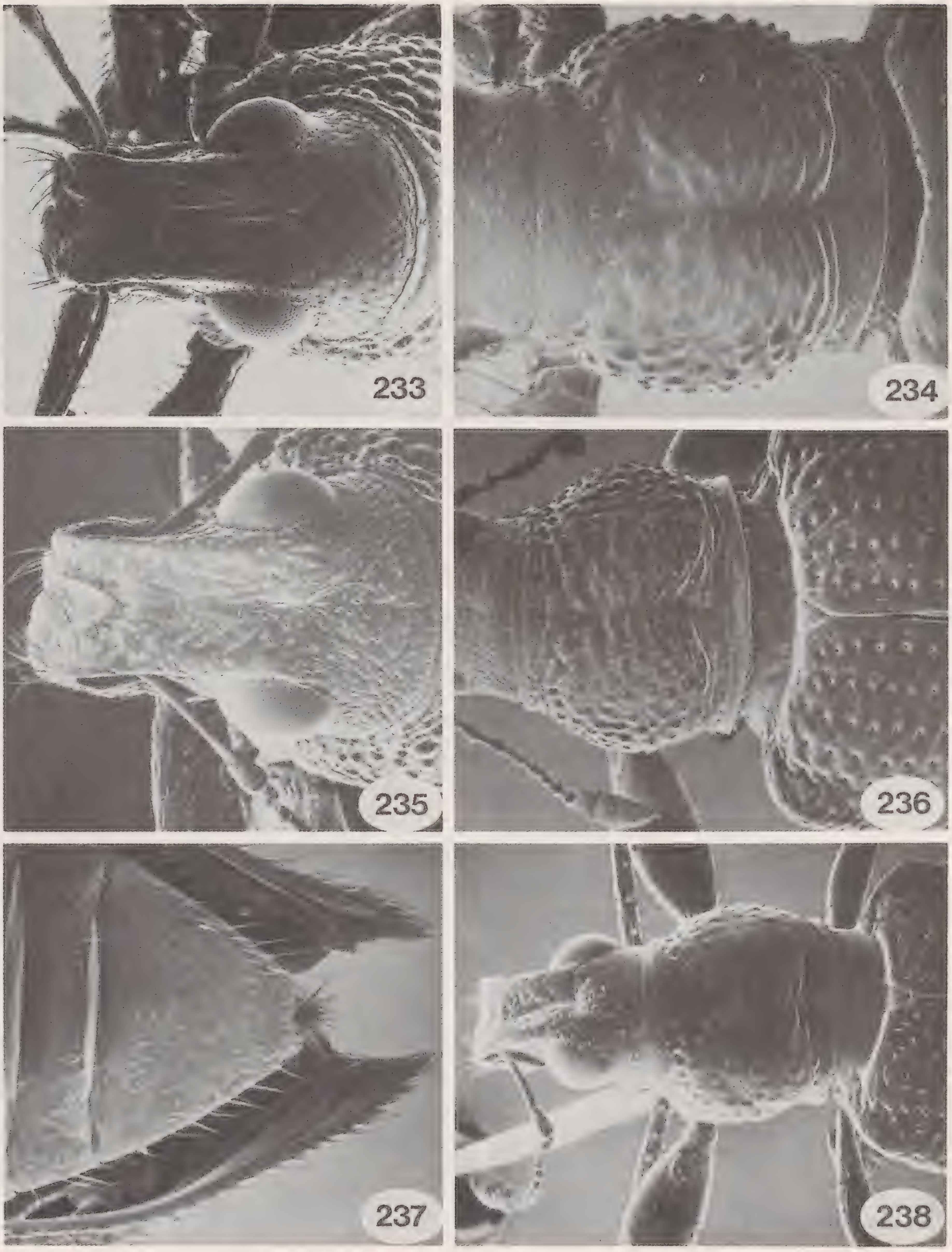
Figs. 214-219. *H.* (*Hadrorestes*) spp. 214, *impressicollis*, female, apex of elytron, dorsal view. 215-218, *institulus*, female: 215, apex of elytron, dorsal view; 216, head, antero-lateral view; 217, prothorax, dorsal view; 218, abdomen and edge of elytra. 219, *bombycinus*, prothorax, female, lateral view.



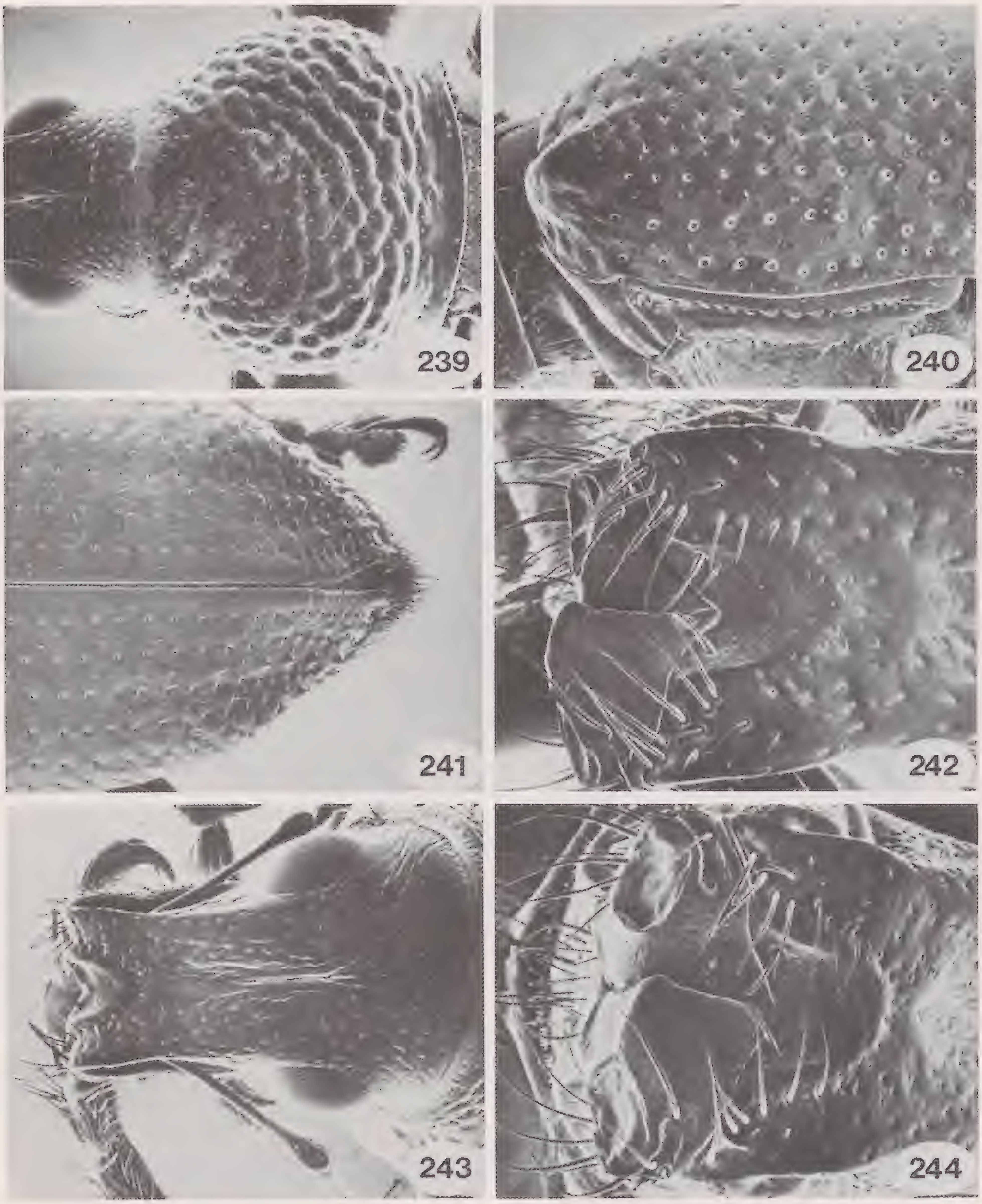
Figs. 220-226. *H.* (*Hadrorestes*) spp. 220-222, *bombycinus*, female: 220, habitus, lateral view; 221, apex of elytra, oblique dorsal; 222, head, anterior view. 223-224, *brachypterus*, female: 223, head, anterior view; 224, fore leg, anterior view. 225, *bombycinus*, female, metasternum, lateral view. 226, *brachypterus*, female, metasternum, lateral view.



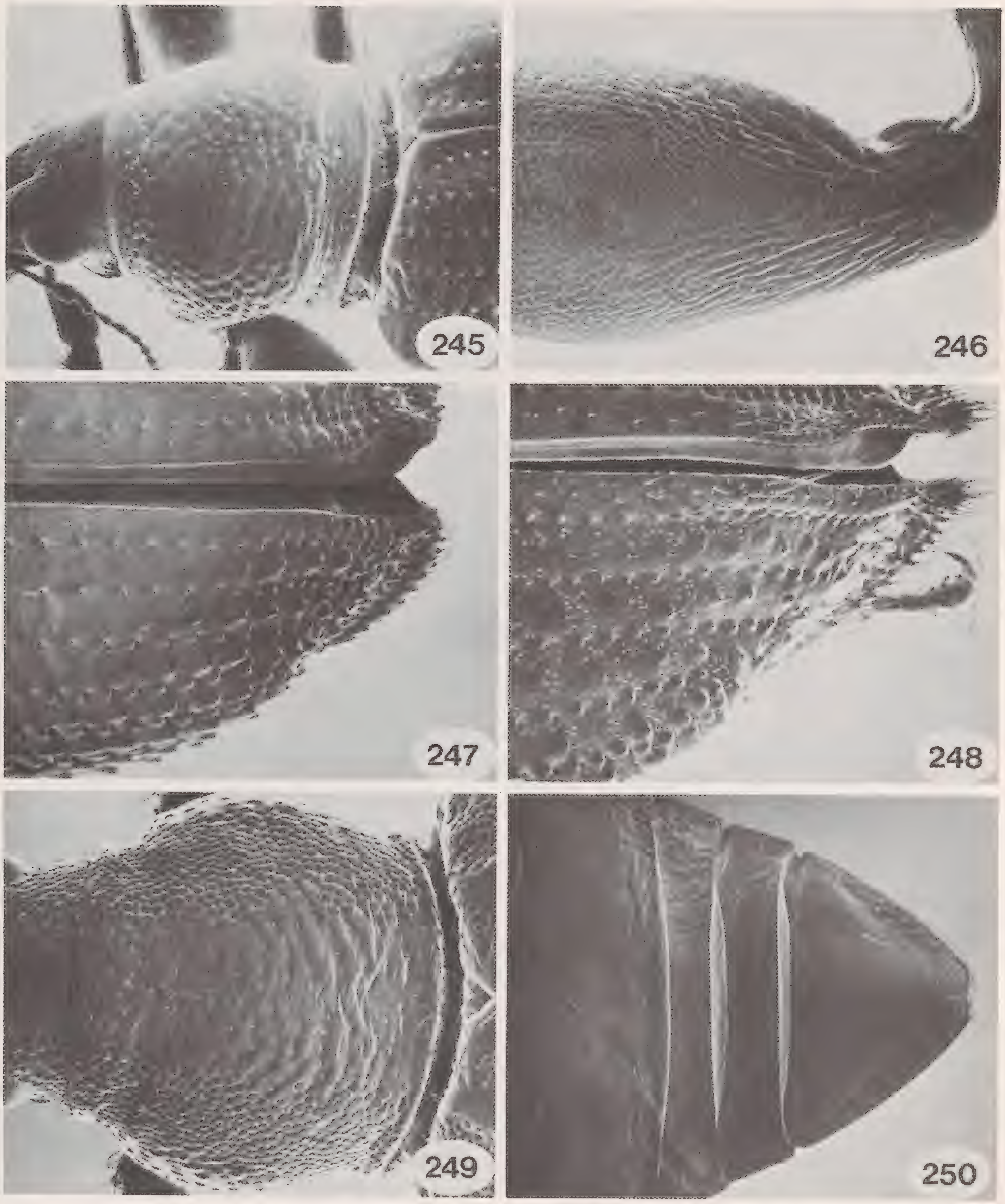
Figs. 227-232. *H.* (*Hadrorestes*) spp. 227-230, *brachypterus*, female: 227, prothorax, dorsal view; 228, apex of elytra, oblique dorsal; 229, dorsal habitus; 230, ventrites 3, 4, and 5. 231-232, *transandinus*, female: 231, habitus, lateral view; 232, apex of elytra, lateral view.



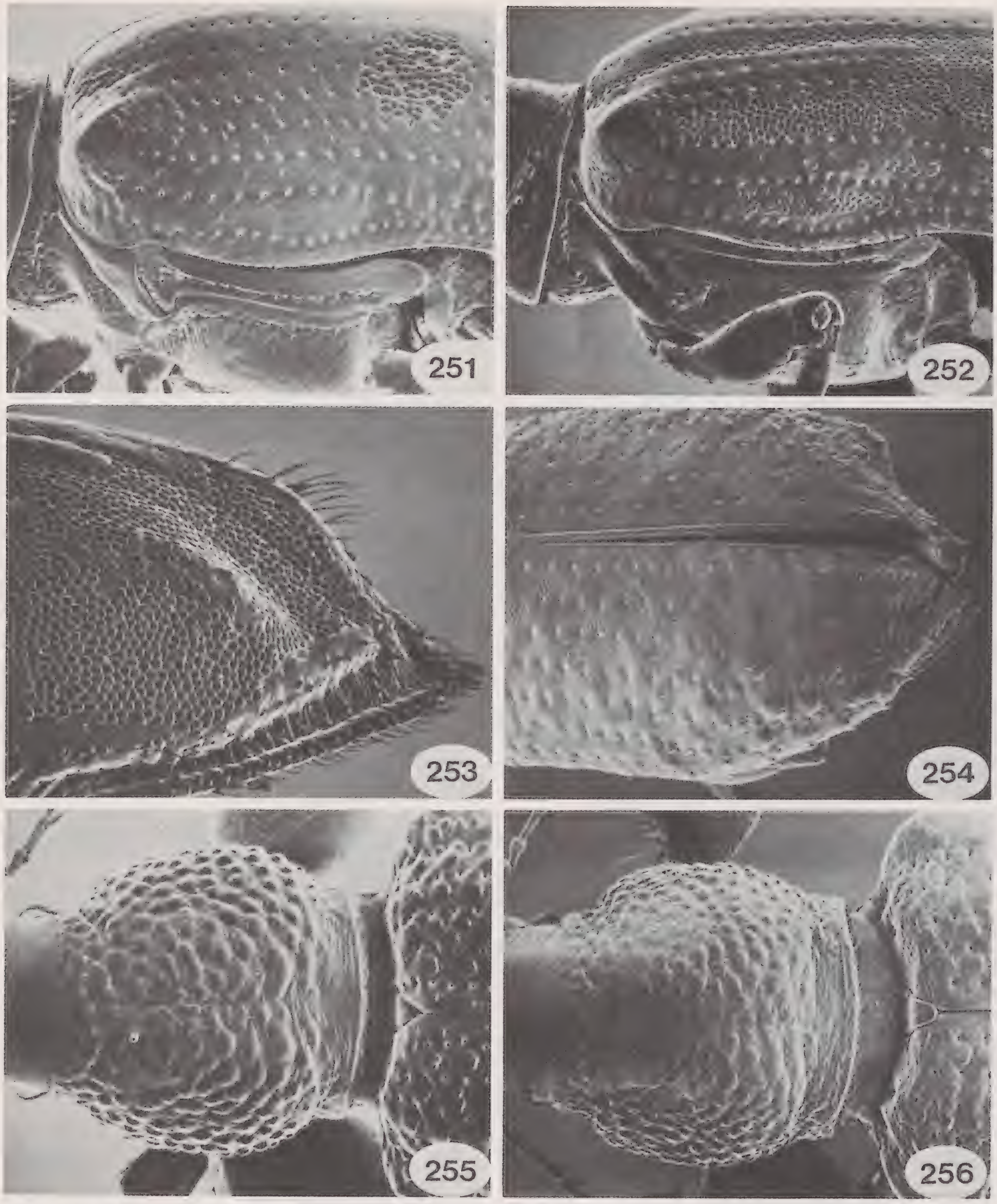
Figs. 233-238. H. (Hadrorestes) spp. 233-234, transandinus: 233, head, female, anterior view; 234, prothorax, male, dorsal view. 235-237, apicalis, female: 235, head, anterior view; 236, prothorax and base of elytra, dorsal view; 237, apex of abdomen and elytra, ventral view. 238, nanus, male, head and prothorax, dorsal view.



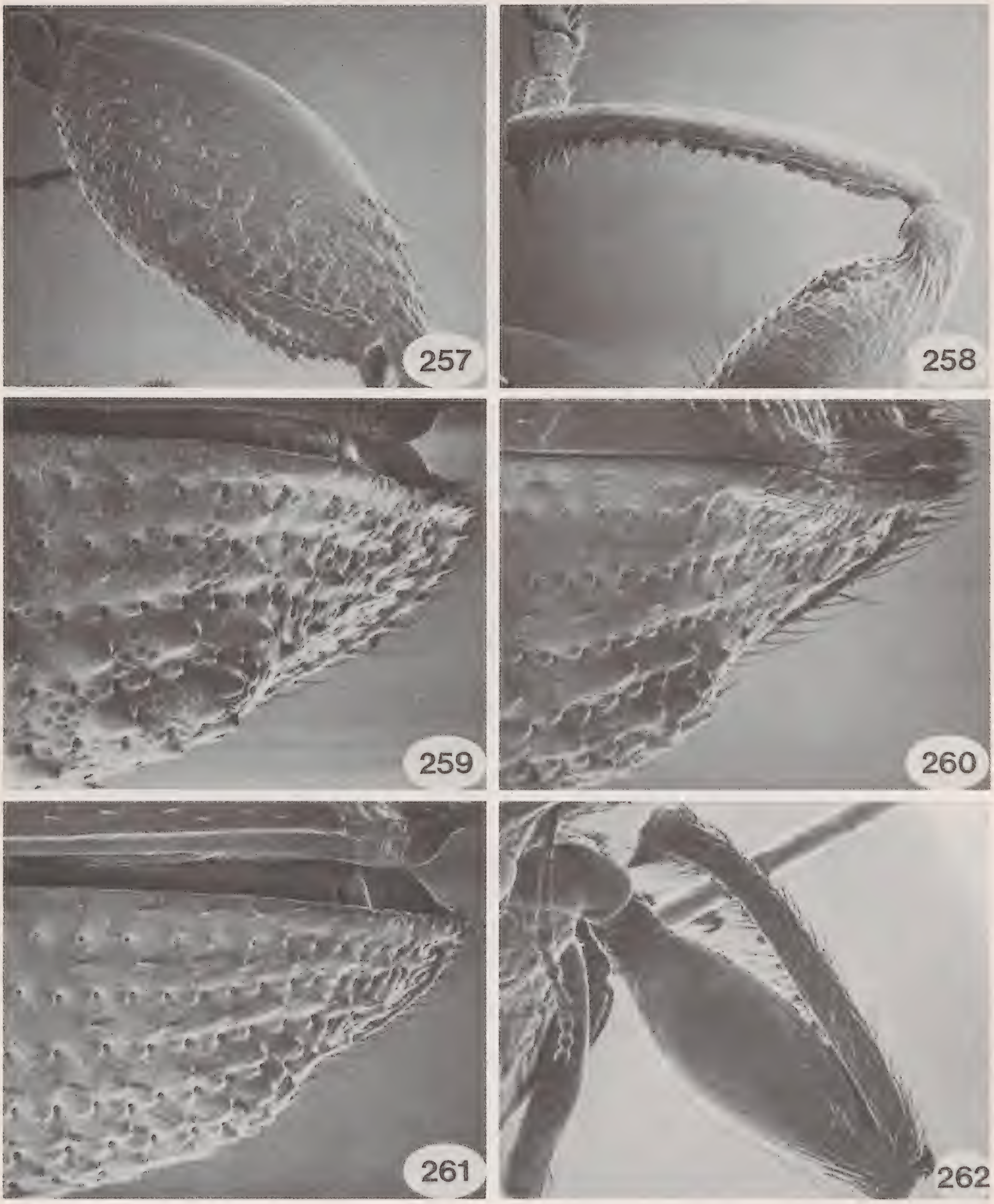
Figs. 239-244. *H.* (*Hadrorestes*) spp. 239-242, *nitidus*, male; 239, prothorax, dorsal view; 240, metasternum, base of elytra, lateral view; 241, apical portion of elytra, dorsal view; 242, apex of rostrum, dorsal view. 243-244, *mandibularis*, female: 243, head, anterior view; 244, apex of rostrum.



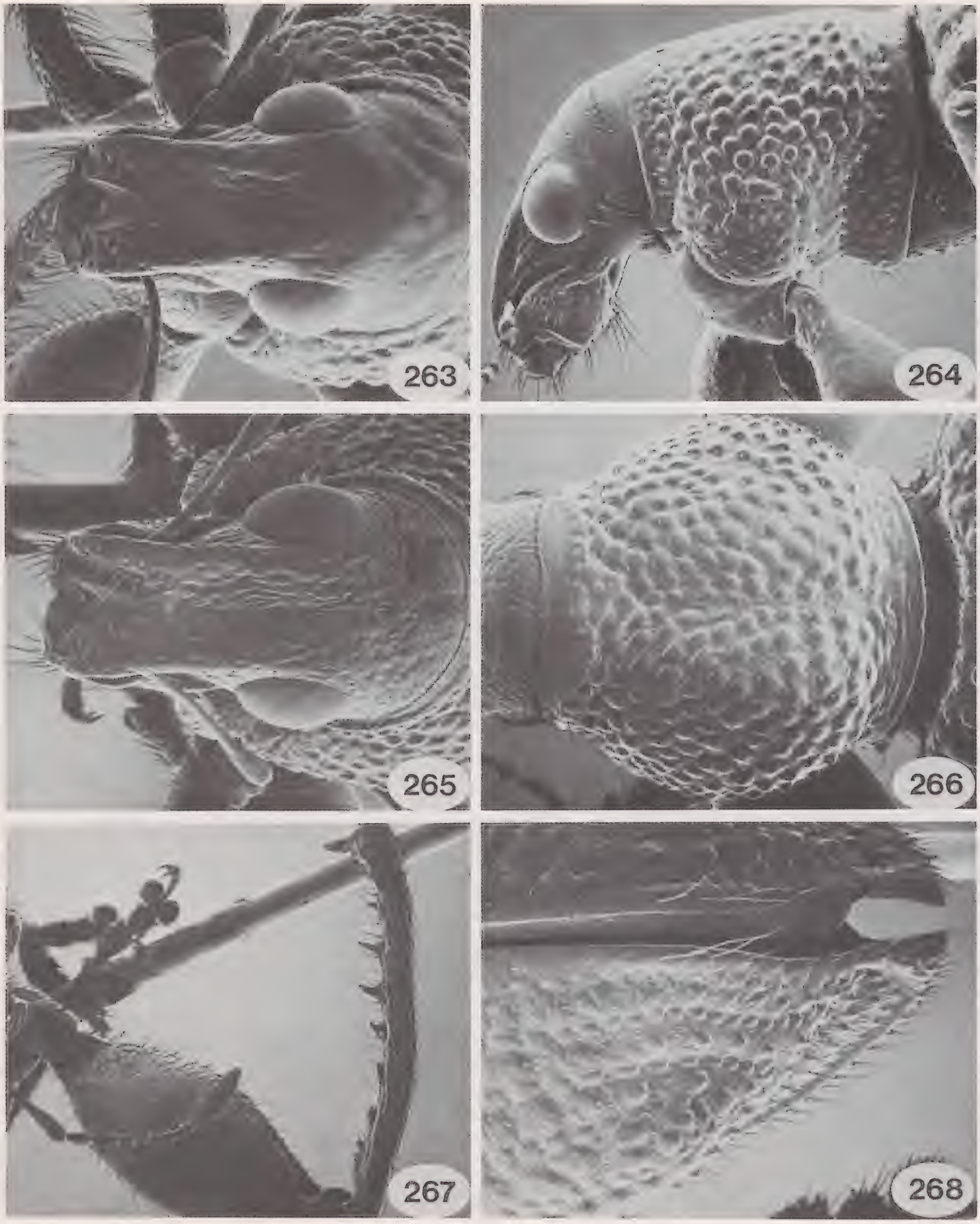
Figs. 245-250. _H._ (_Hadrorestes_) spp. 245-248, _mandibularis_: 245, prothorax, female, dorsal view; 246, fore femur, male, anterior view; 247, apex of elytra, male, dorsal view; 248, apex of elytra, female, dorsal view. 249-250, _magicus_, female: 249, prothorax, dorsal view; 250, abdomen.



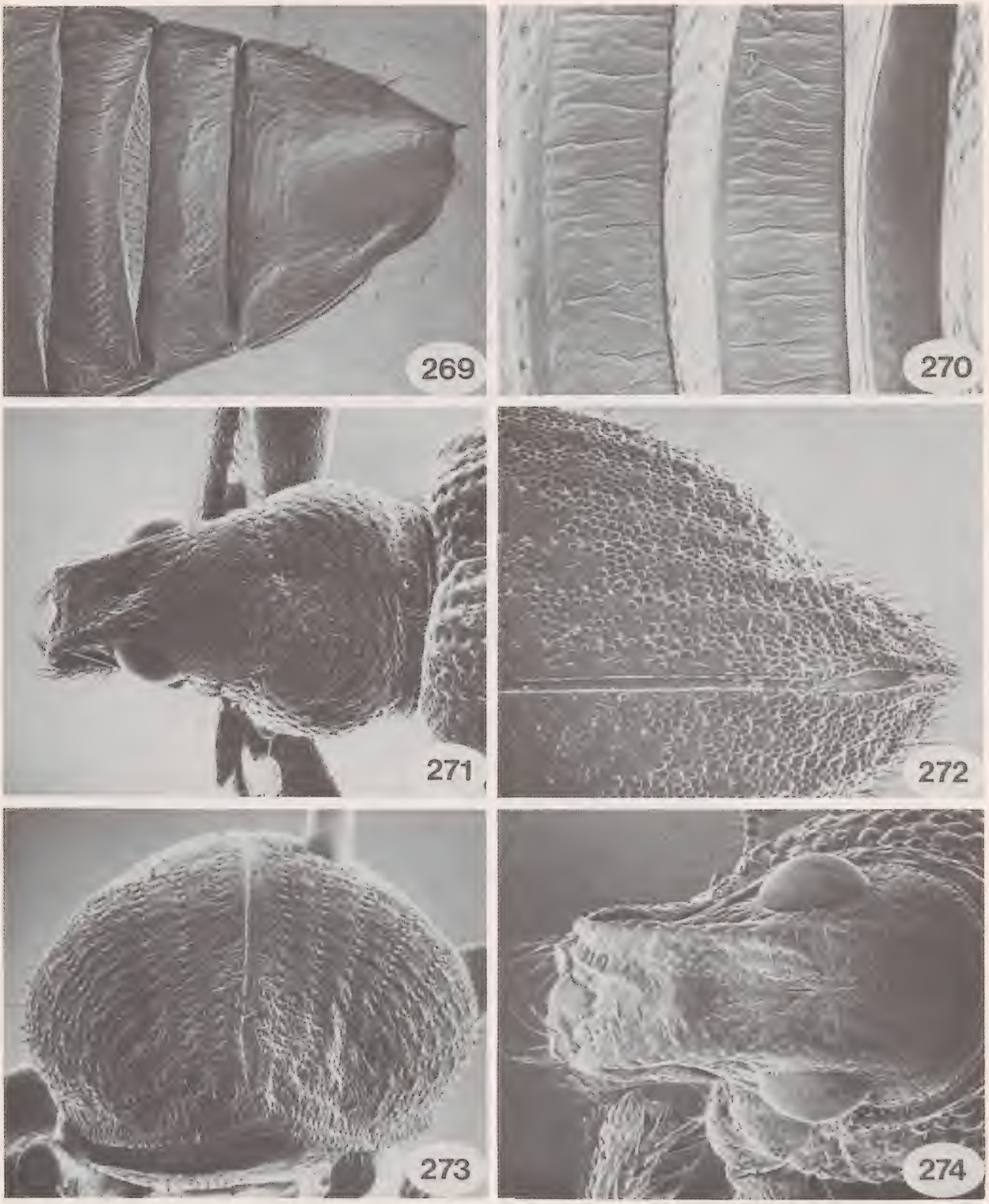
Figs. 251-256. *H.* (*Hadrorestes*) spp. 251-253, *magicus*: 251, base of elytra, male, lateral view; 252, base of elytra, female, lateral view; 253, apex of elytra, female, lateral view. 254-256, *conquisitus*: 254, apical portion of elytra, female, dorsal view; 255, prothorax, holotype, male, glabrous, dorsal view; 256, prothorax, male, squamose specimen, dorsal view.



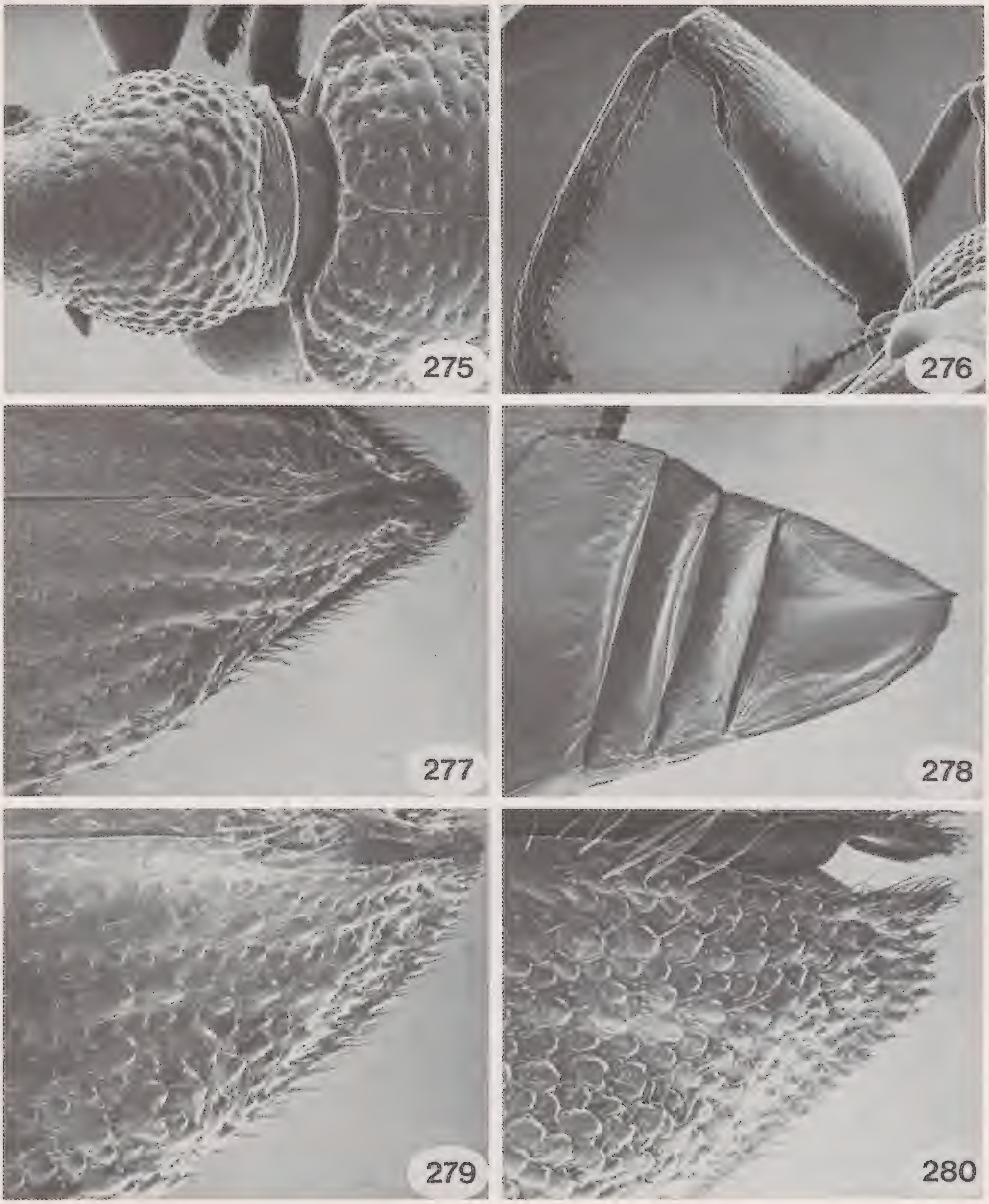
Figs. 257-262. *H.* (*Hadrorestes*) spp. 257-259, *conquisitus*, male: 257, fore femur, posterior view; 258, fore leg, anterior view; 259, apex of elytron, dorsal view. 260-262, *scambus*: 260, apex of elytron, female, dorsal view; 261, apex of elytron, male, dorsal view; 262, fore leg, female.



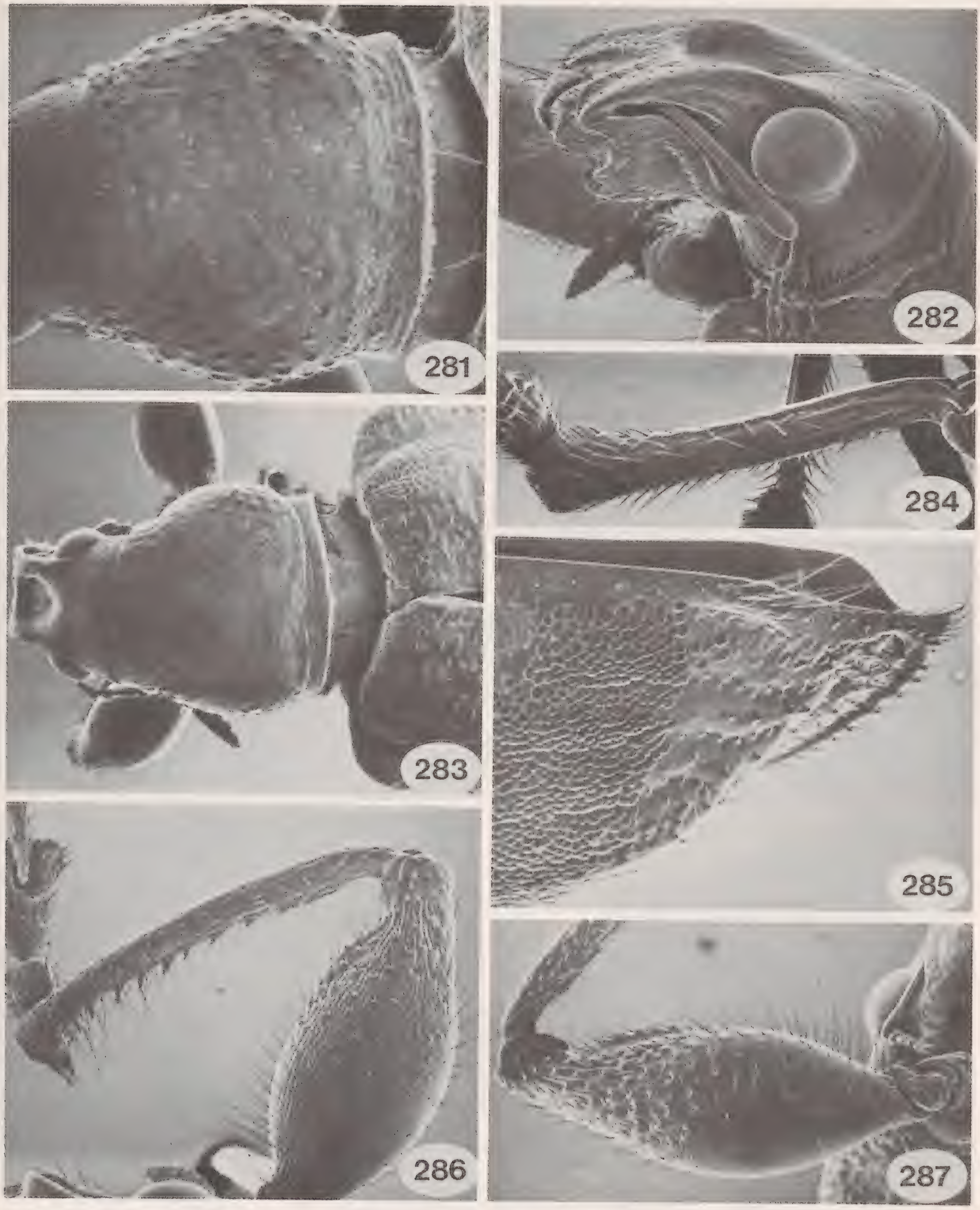
Figs. 263-268. H. (Hadrorestes) spp. 263-264, scambus, female: 263, head, anterior view; 264, head and prothorax, lateral view. 265-268, pectinatus: 265, head, type, male, anterior view; 266, prothorax, type, male, dorsal view; 267, fore leg, male from Colombia, anterior view; 268, apex of elytra, female, dorsal view.



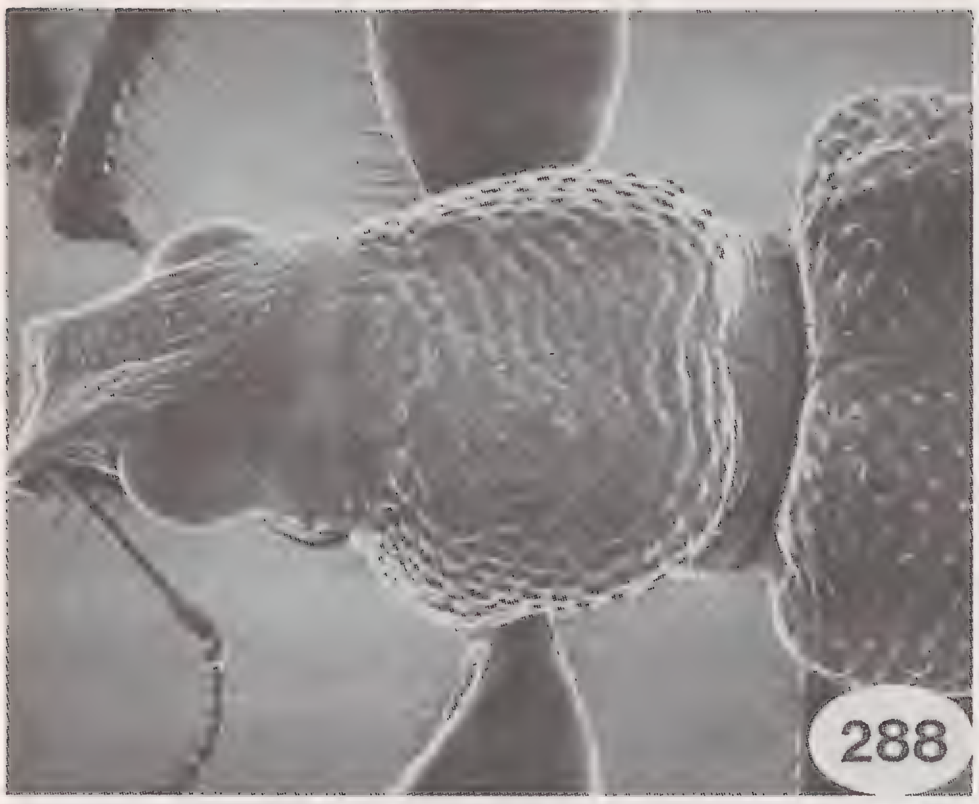
Figs. 269-274. *H.* *(Hadrorestes)* spp. 269-270, *pectinatus*, allotype: 269, abdomen; 270, detail of caudal surface ventrites 2, 3, and 4. 271-273, *picchuensis*, female: 271, head and prothorax, dorsal view; 272, apex of elytra, dorsal view; 273, elytra, caudal view. 274, *contractus*, head, female, anterior view.

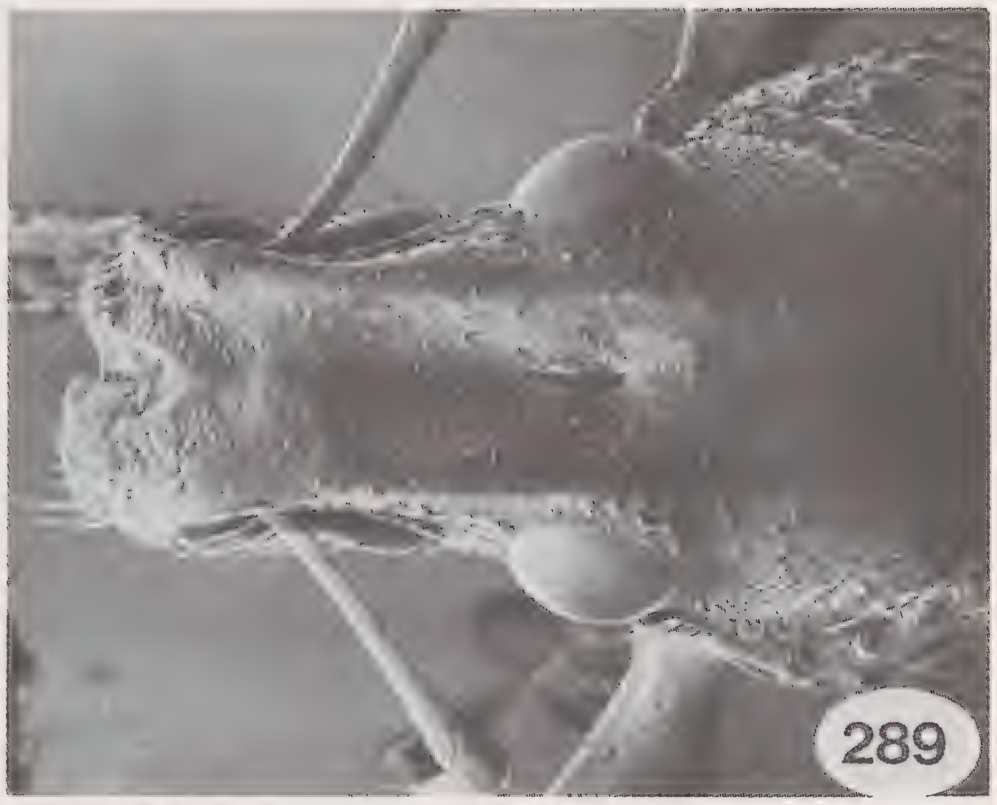


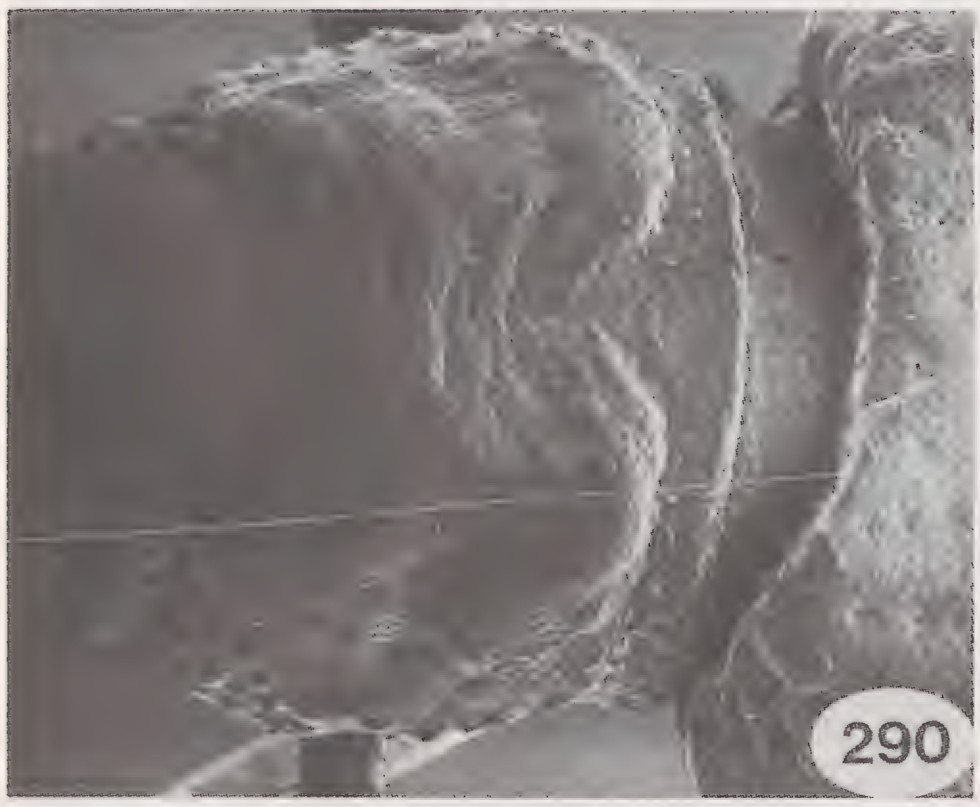
Figs. 275-280. H. (Hadrorestes) spp. 275-278, contractus, female: 275, prothorax, dorsal view; 276, fore leg, anterior view; 277, apex of elytra, dorsal view; 278, abdomen. 279, dialeucus, female, apex of elytra, dorsal view. 280, spiculatus, female, apex of elytra, dorsal view.

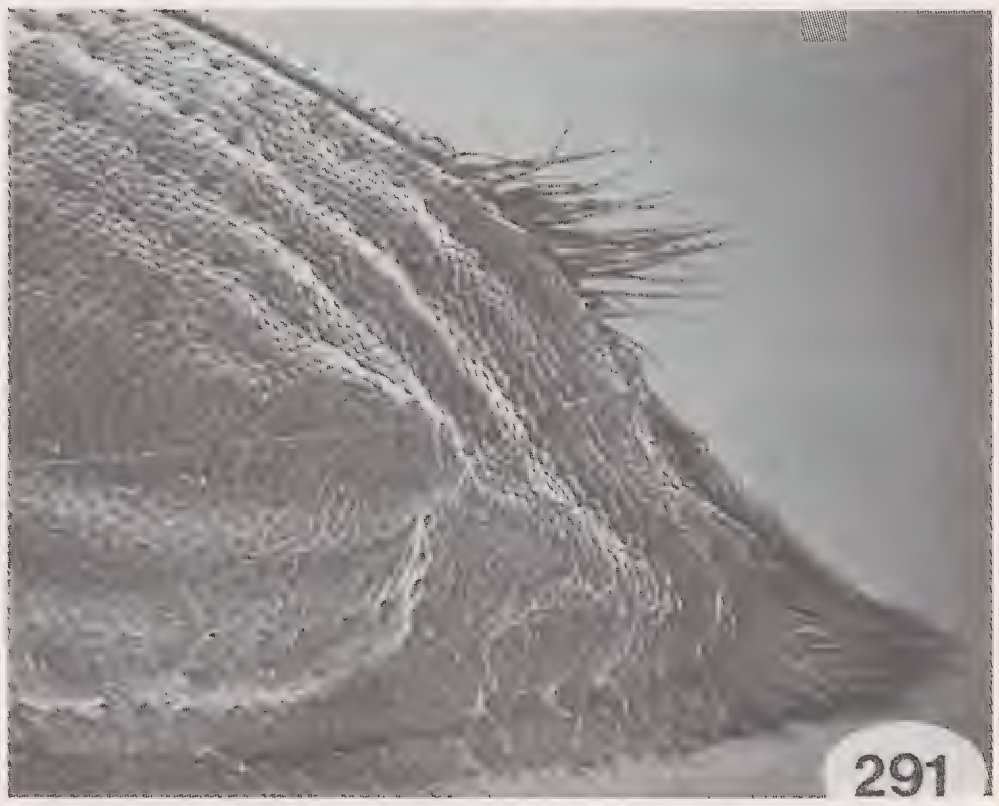


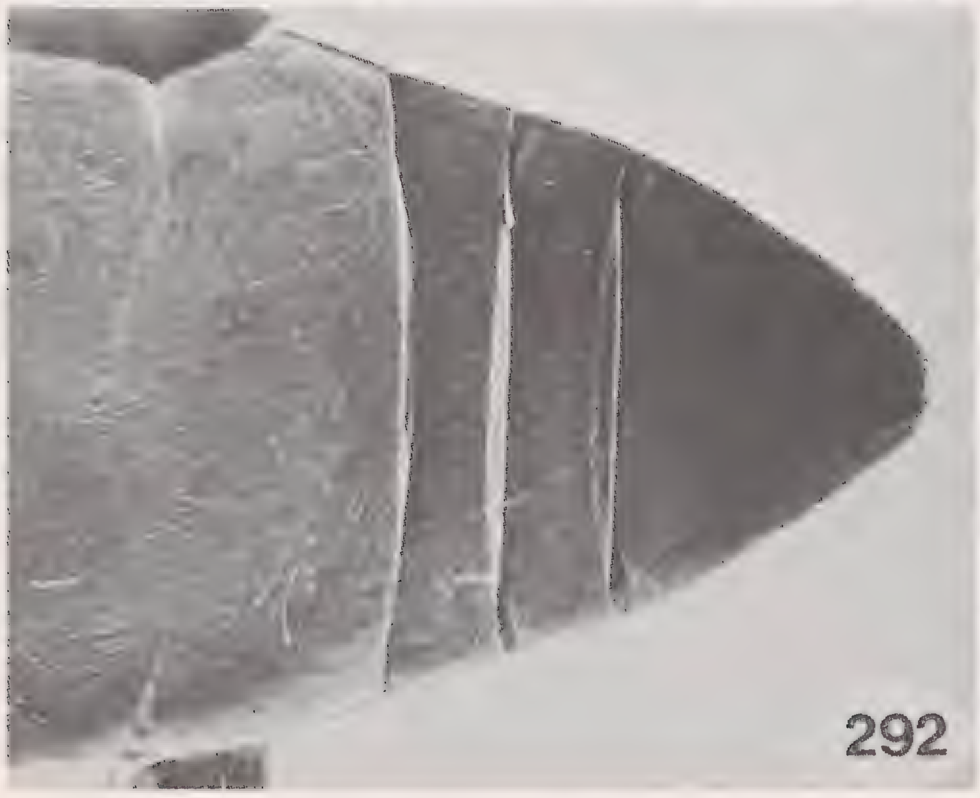
Figs. 281-287. *H.* (*Hadrorestes*) spp. 281, *dialeucus*, female, prothorax, dorsal view. 282-285, *cavifrons*, female: 282, head, oblique lateral view; 283, prothorax and head, dorsal view; 284, hind tibia, outer view; 285, apex of elytron, dorsal view. 286-287, *spiculatus*, male, fore leg: 286, anterior view; 287, posterior view.











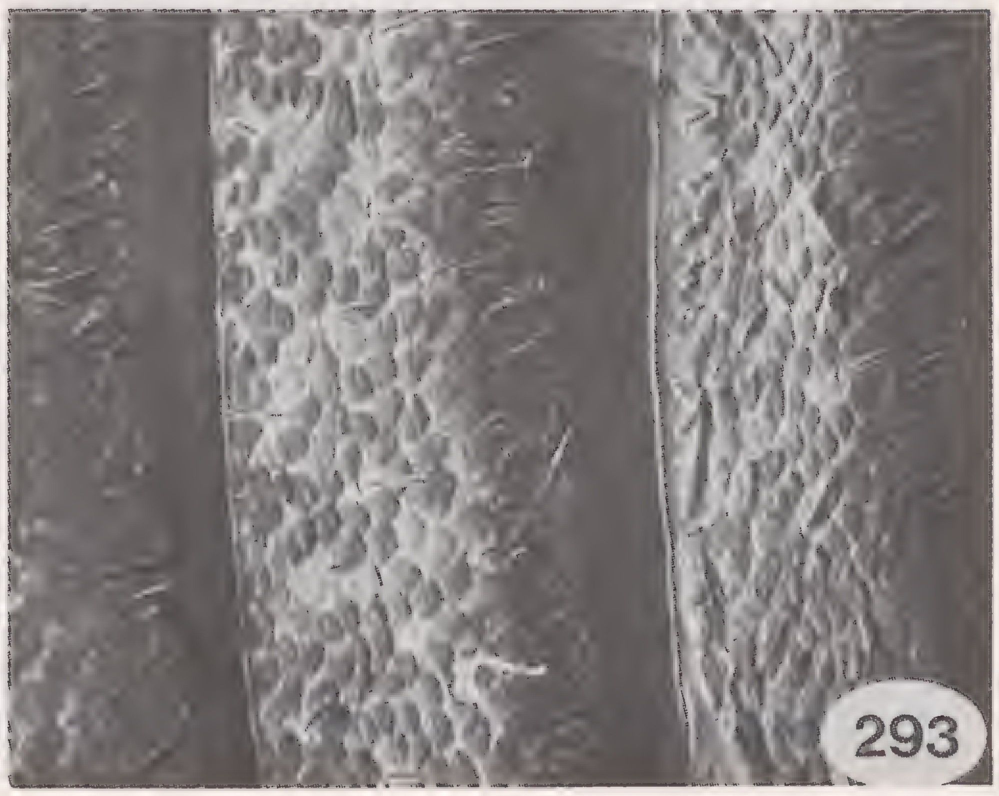
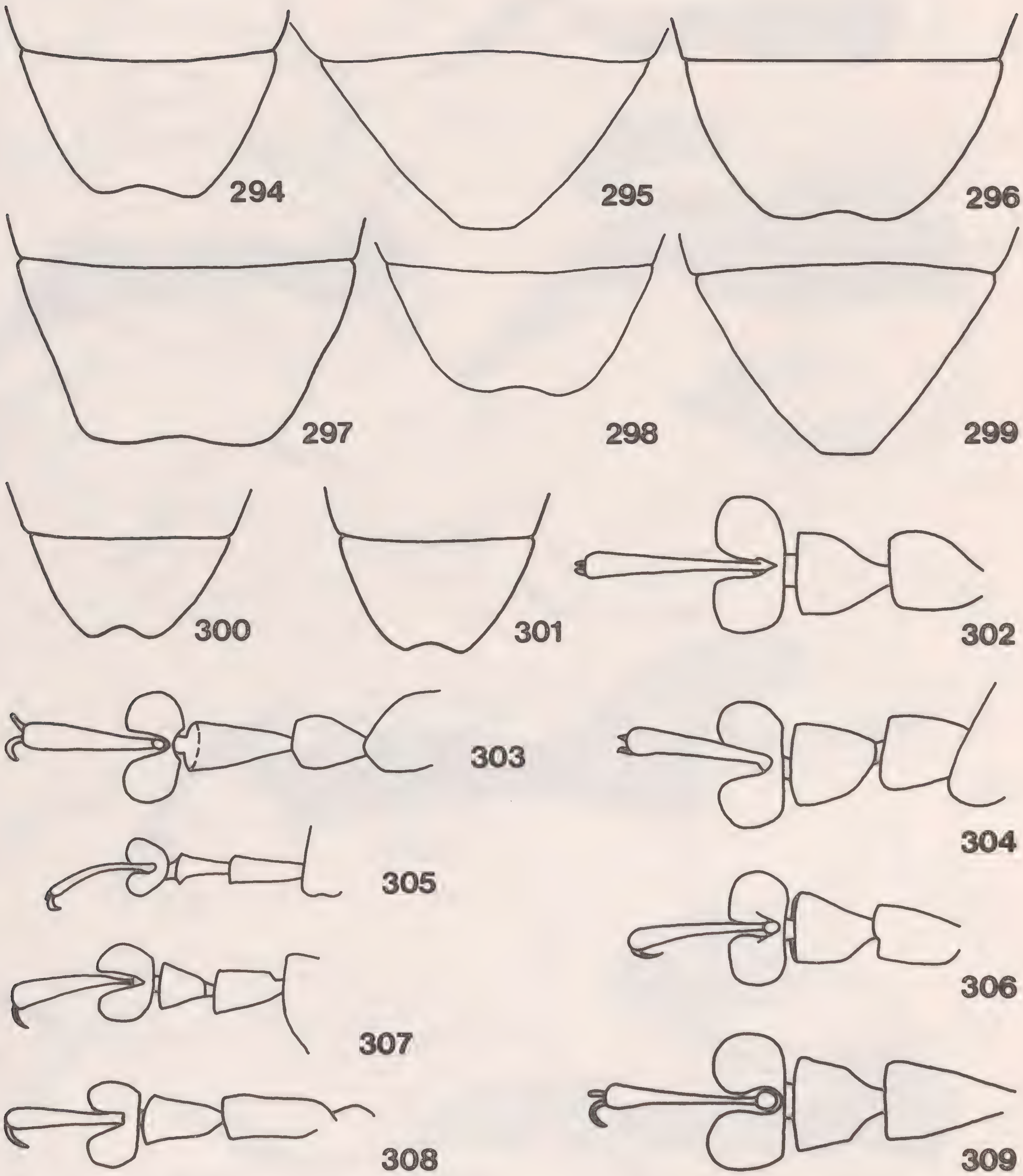
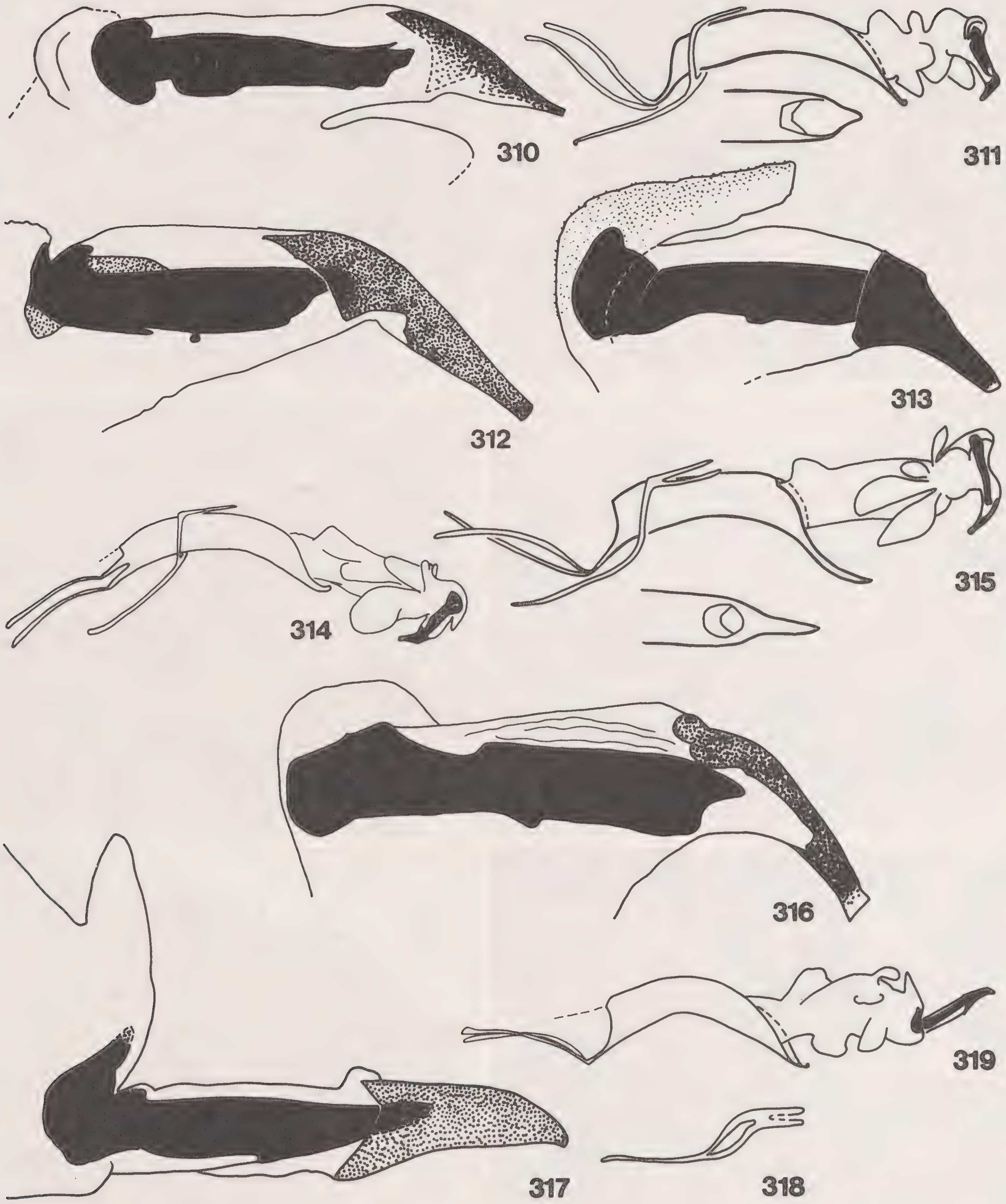


Fig. 288. *H.* (*Hadrorestes*) *spiculatus*, male, head and prothorax, dorsal view.

Figs. 289-293. *Hadromeropsis earinus*, female: 289, head, dorsal view; 290, prothorax, dorsal view; 291, apex of elytra, lateral view; 292, abdomen; 293, detail of caudal edge of ventrites 2, 3, and 4.



Figs. 294-309. *H.* (*Hadrorestes*) spp. 294-301, ventrite 5: 294, *alacer*, male; 295, *alacer*, female; 296, *nebulicolus*, male; 297, *silaceus*, male; 298, *inconscriptus*, male; 299, *inconscriptus*, female; 300, *nitidus*, male; 301, *magicus*, male. 302-309, fore tarsus: 302, *alacer*, male; 303, *impressicollis*, male; 304, *inconscriptus*, male; 305, *transandinus*, female; 306, *nebulicolus*, male; 307, *dialeucus*, male; 308, *pectinatus*, male; 309, *silaceus*, male.



Figs. 310-319. *H.* (*Hadrorestes*) spp. male genitalia. 310-311, *alacer*: 310**, apex of internal sac; 311, aedeagus. 312**, *inconscriptus*, apex of internal sac. 313-314, *nebulicolus*: 313**, apex of internal sac; 314, aedeagus. 315-316, *silaceus*: 315, aedeagus and apex of aedeagus in dorsal view; 316**, apex of internal sac. 317-319, *impressicollis*: 317**, apex of internal sac; 318, tegmen; 319, aedeagus.

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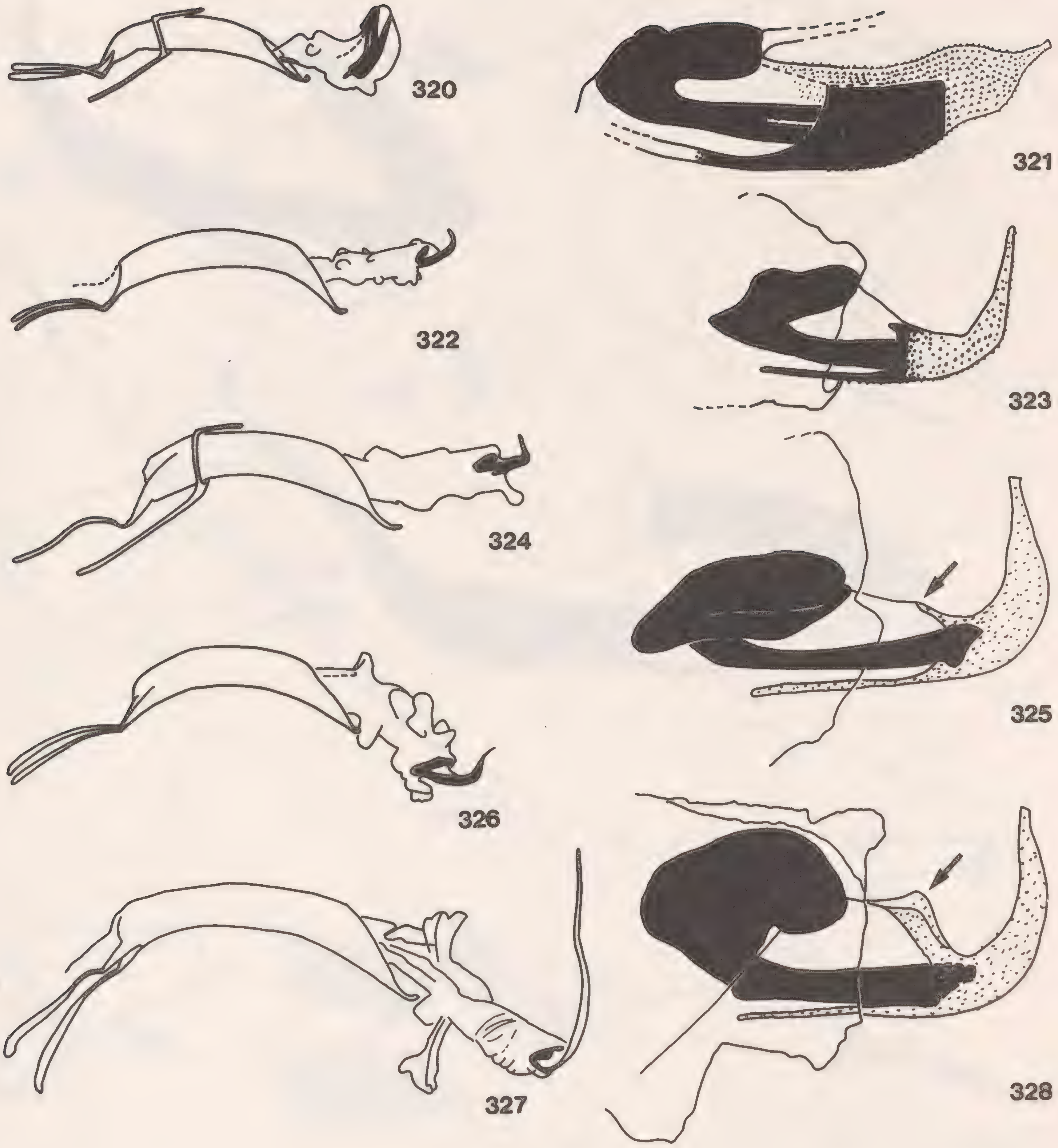

Figs. 320-328. H. (Hadrorestes) spp. male genitalia. 320-321, nanus: 320, aedeagus (sac not completely extruded); 321**, apex of internal sac. 322-323, transandinus: 322, aedeagus; 323**, apex of internal sac. 324-325, dialeucus: 324, aedeagus; 325**, apex of internal sac. 326, scambus, aedeagus. 327, spiculatus, aedeagus. 328**, pectinatus, apex of internal sac.

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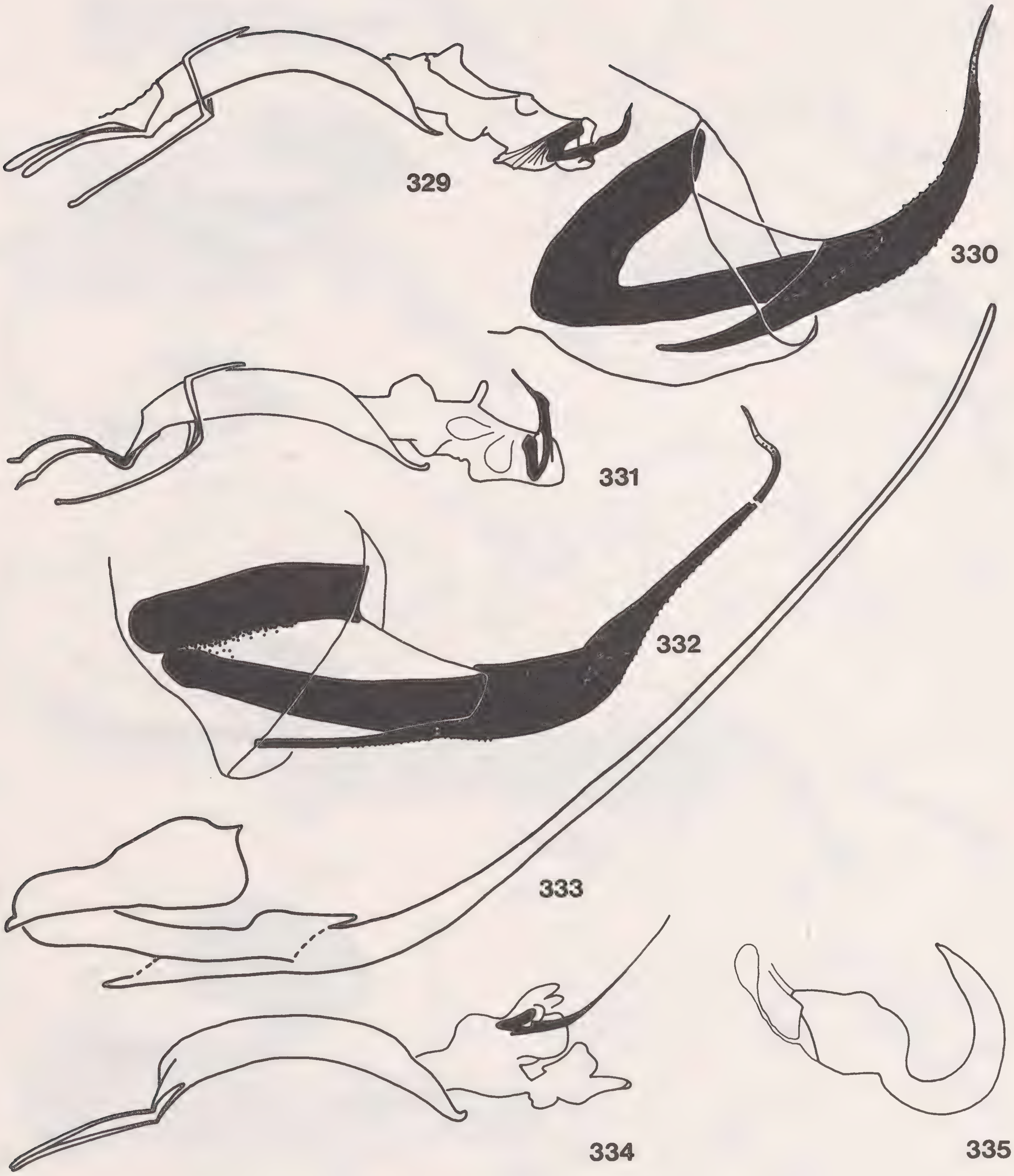

Figs. 329-334. H. (Hadrorestes) spp. male genitalia. 329-330, conquisitus: 329, aedeagus; 330**, apex of internal sac. 331-332, magicus: 331, aedeagus; 332**, apex of internal sac. 333-334, nitidus: 333**, apex of internal sac; 334, aedeagus.

Fig. 335*. Hadromeropsis earinus, spermatheca.

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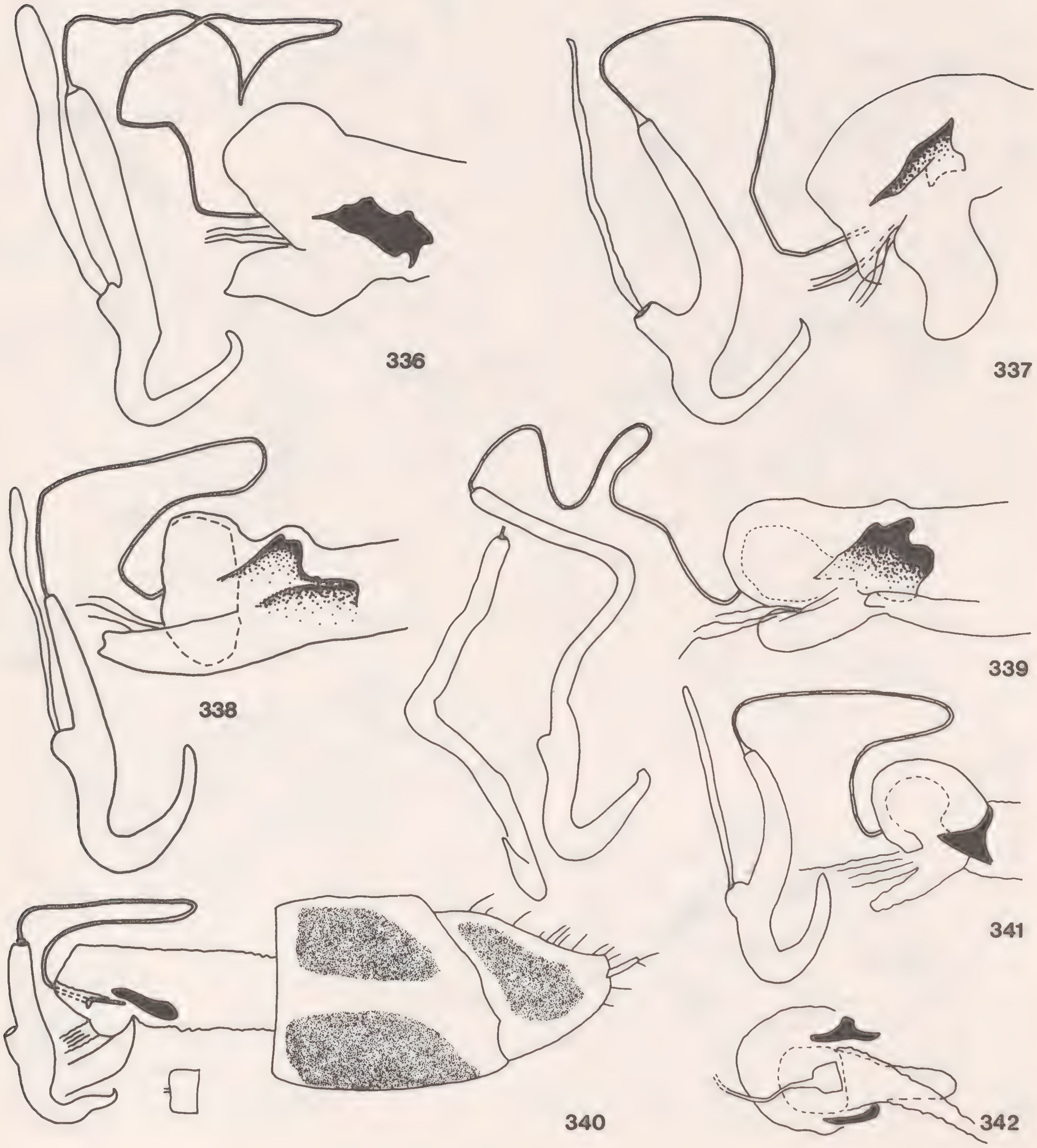
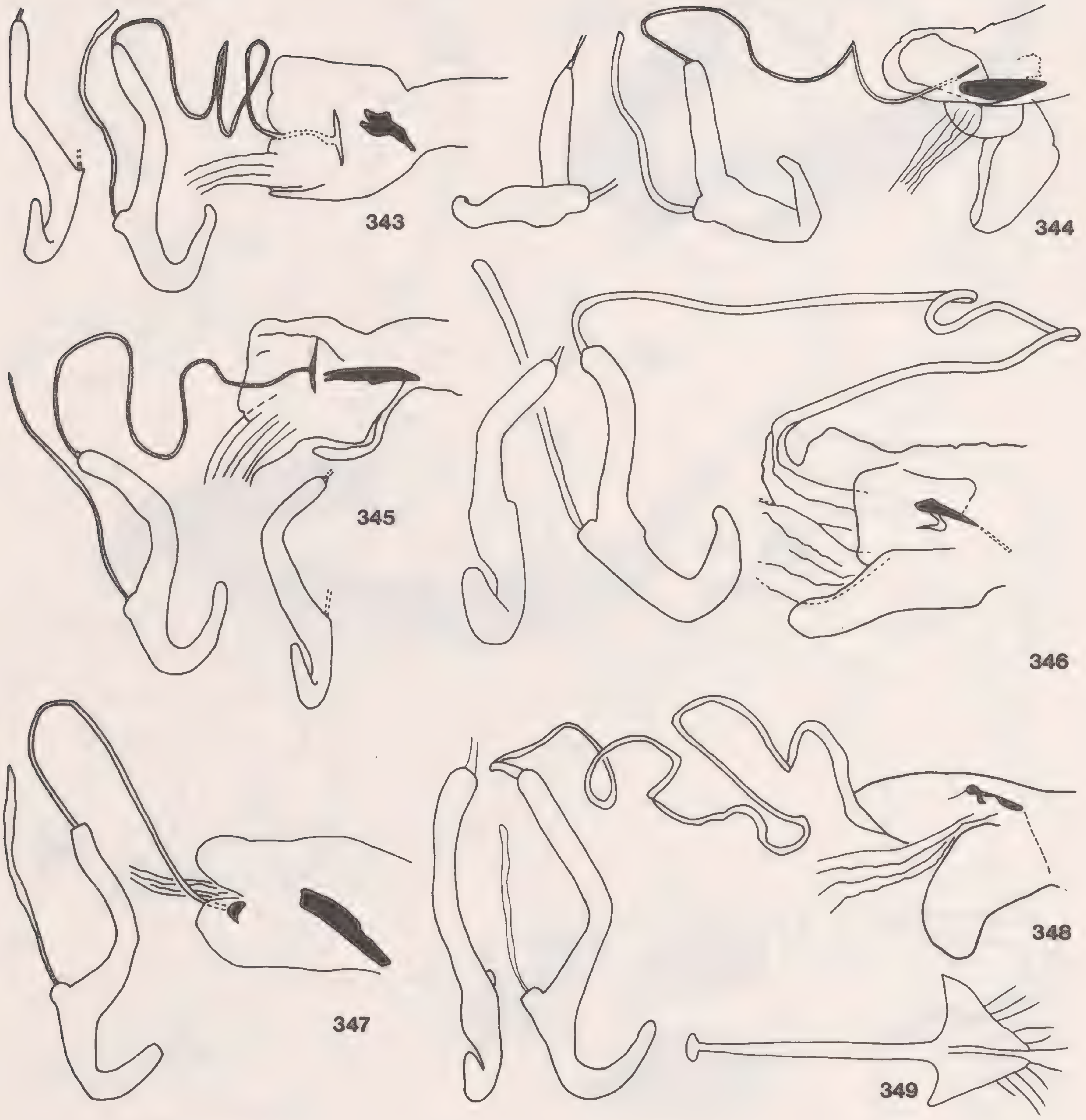
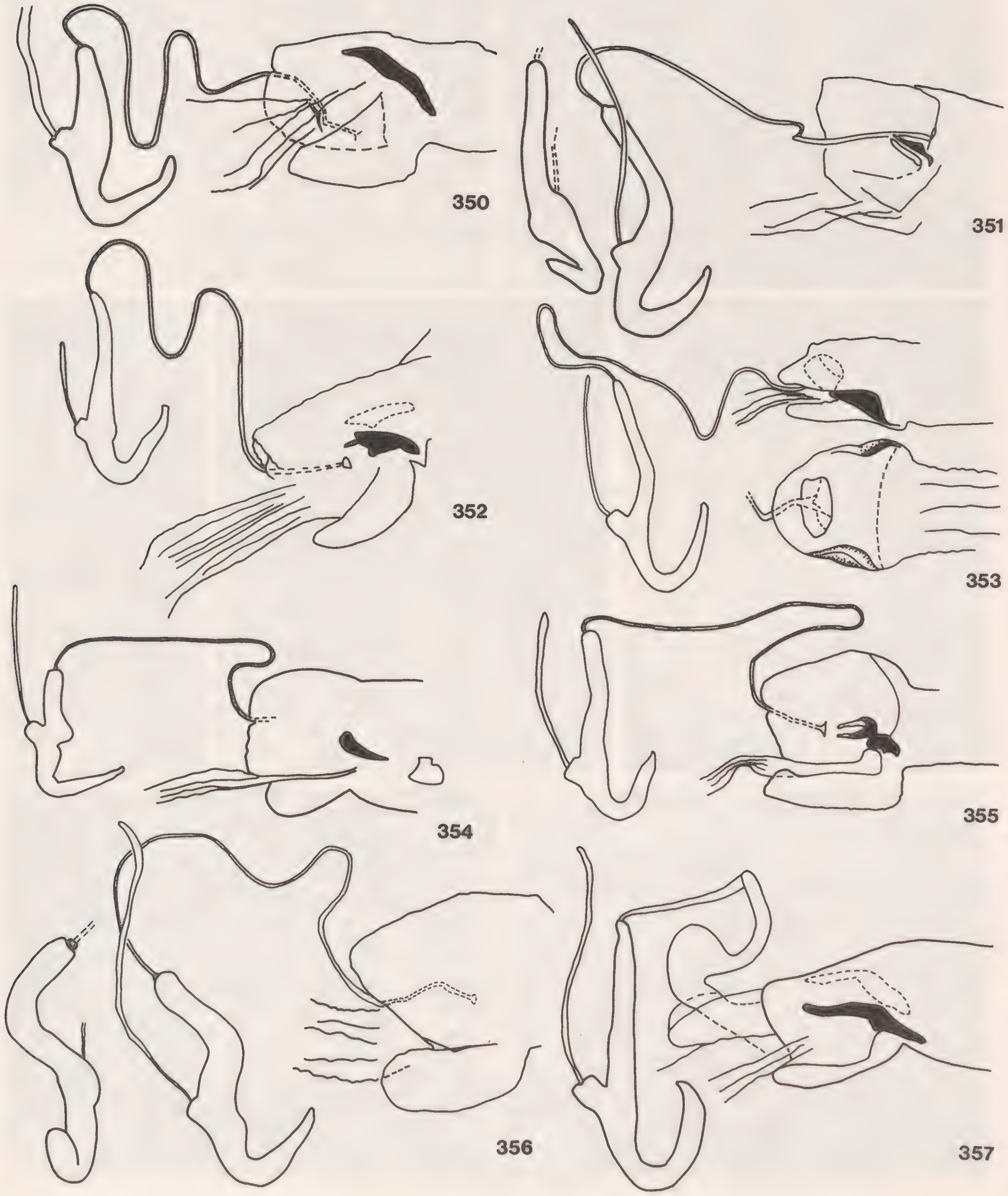


Figs. 336-340. H. (Hadrorestes) spp. female genitalia. 336, alacer. 337, silaceus. 338, nebulicolus. 339, inconscriptus, spermatheca in lateral and edge view. 340, institulus, plus ventral view of bursal sclerite. 341, bombycinus. 342, bombycinus, ventral view of bursa copulatrix with common oviduct pulled aside.

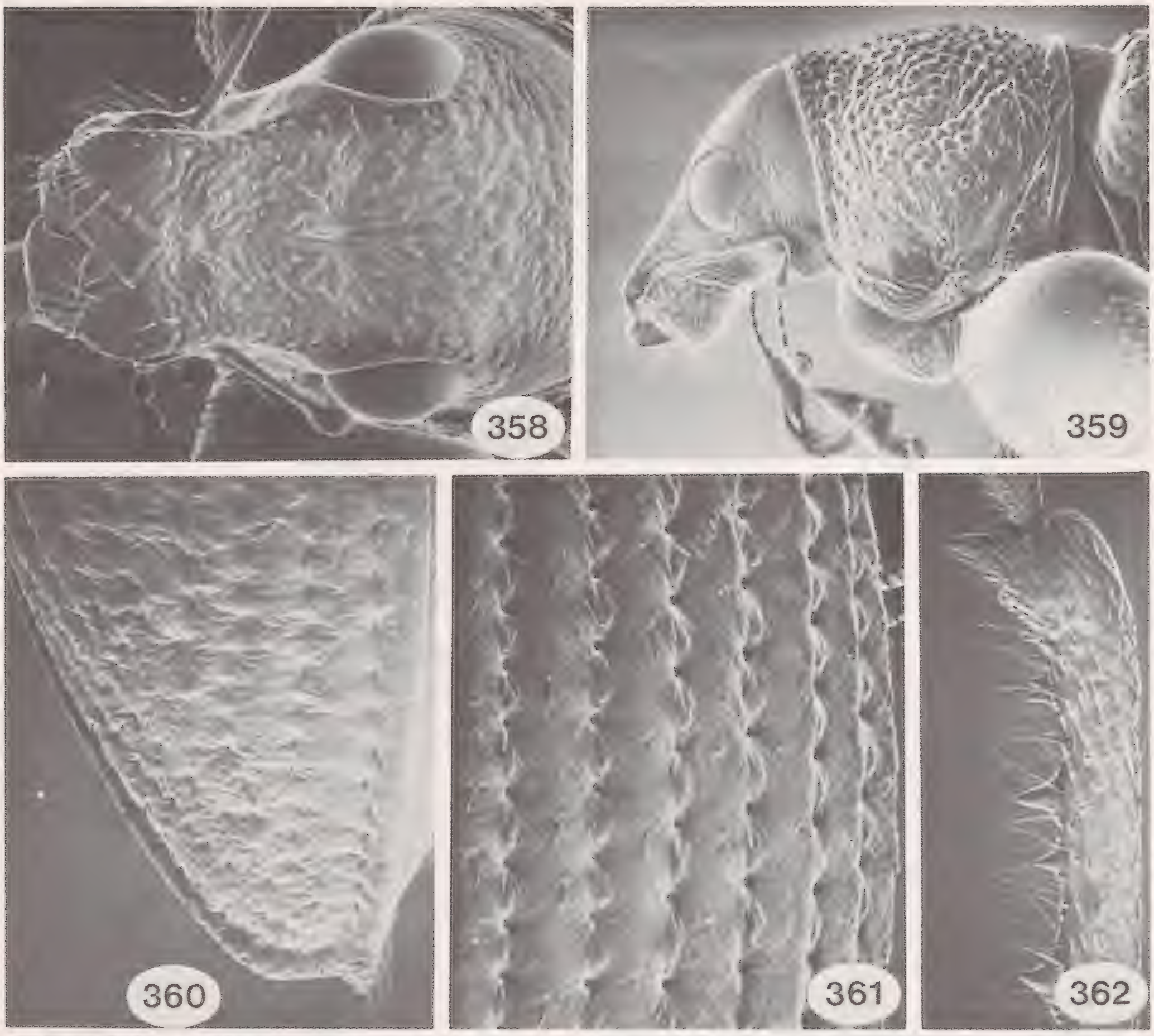


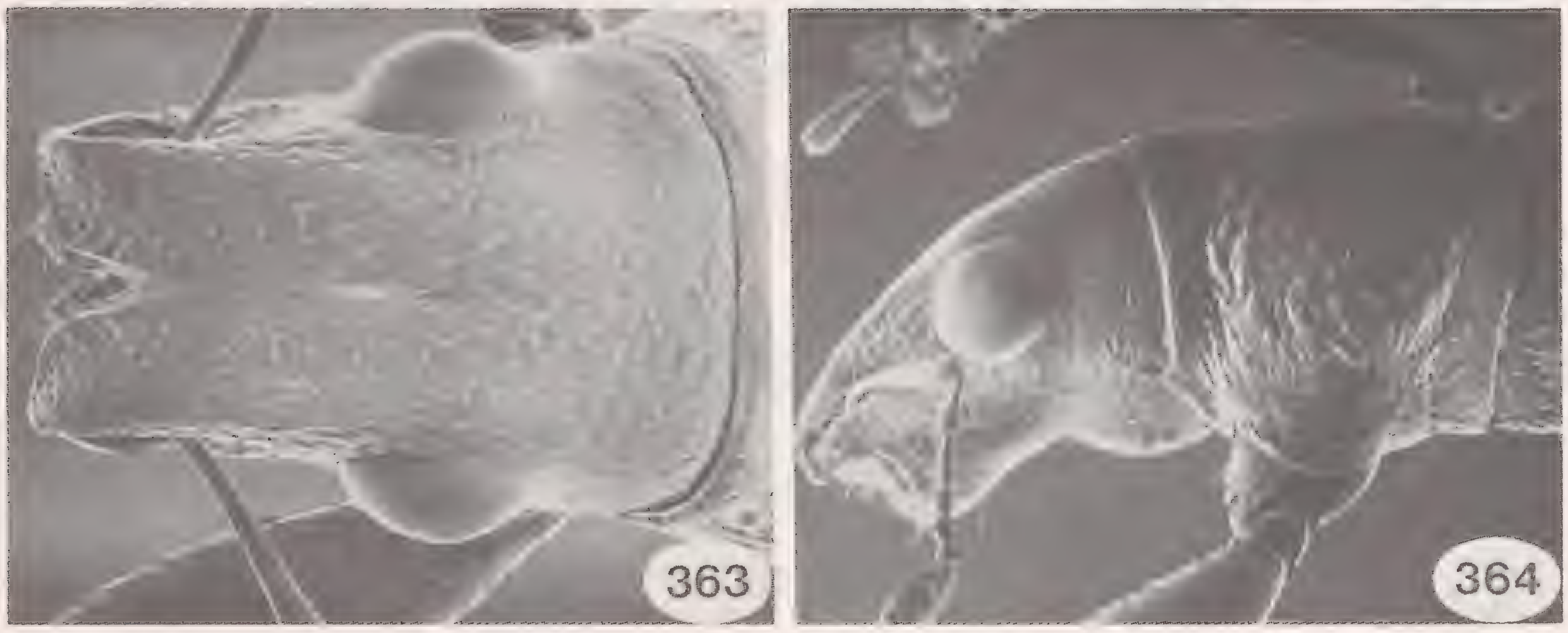
Figs. 343-348. _H_. (_Hadrorestes_) spp. female genitalia. 343, _transandinus_, including edge view of spermatheca. 344, _brachypterus_, including edge view of spermatheca. 345, _apicalis_, including edge view of spermatheca. 346, _mandibularis_, including edge view of spermatheca. 347, _magicus_. 348, _nitidus_, including edge view of spermatheca.

Fig. 349. _H_. (_Hadromeropsis_) _argentinensis_, spiculum ventrale.



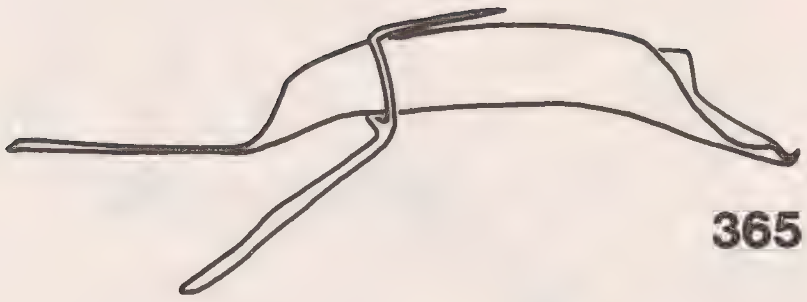
Figs. 350-357. *H.* (*Hadrorestes*) spp. female genitalia. 350, *conquisitus*. 351, *scambus*, including edge view of spermatheca. 352, *pectinatus*. 353, *picchuensis*, plus ventral view of bursa copulatrix with common oviduct pulled aside. 354, *contractus*, plus second example of lateral sclerite. 355, *dialeucus*. 356, *cavifrons*, including edge view of spermatheca. 357, *spiculatus*.





Figs. 358-362. *Hadromeropsis striatus* male. 358, head, anterior view; 359, head and prothorax, lateral view; 360, apex of elytra, dorsal view; 361, center of right elytron, dorsal view; 362, fore tibia, distal half, anterior view.

Figs. 363, 364. *H.* (*Hadrorestes*) *exilis* male. 363, head, anterior view; 364, head and prothorax, lateral view.



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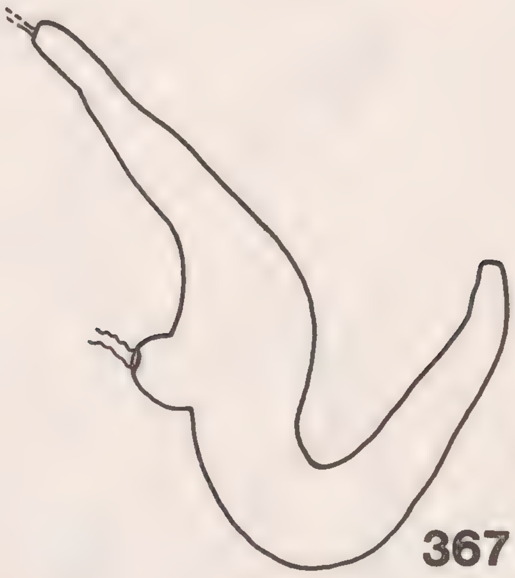

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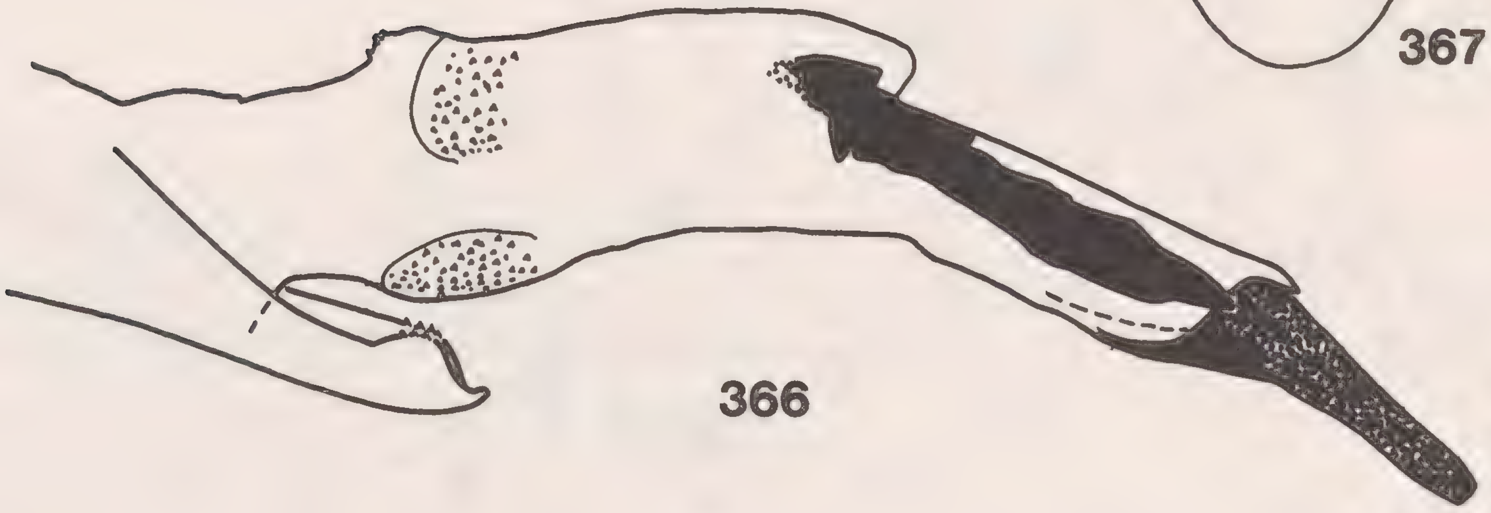

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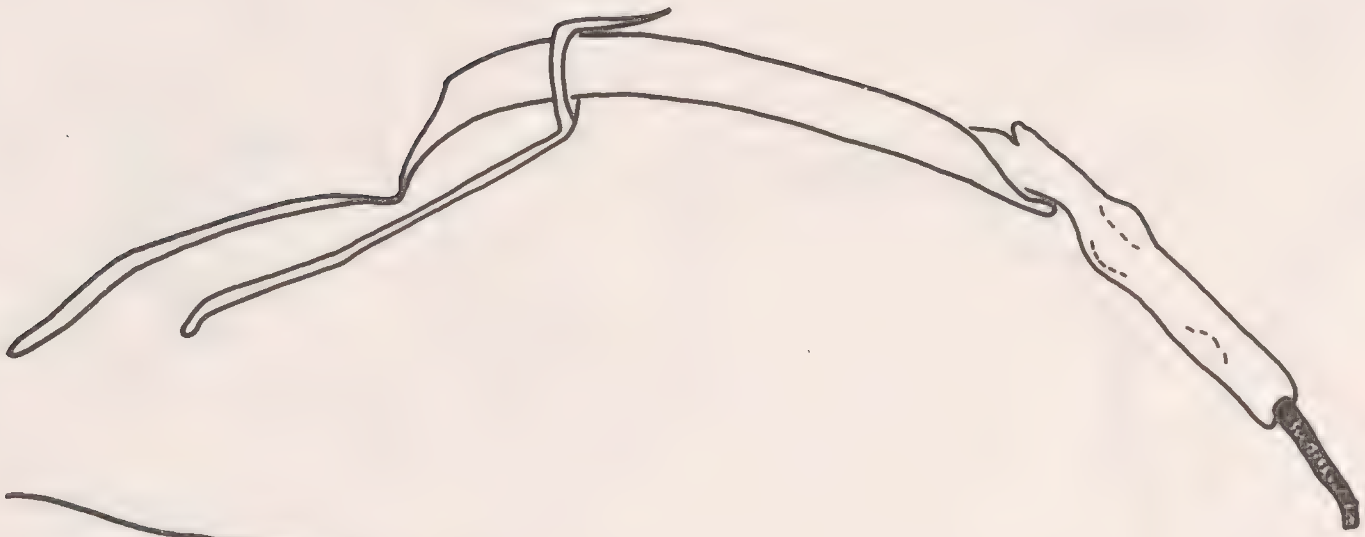

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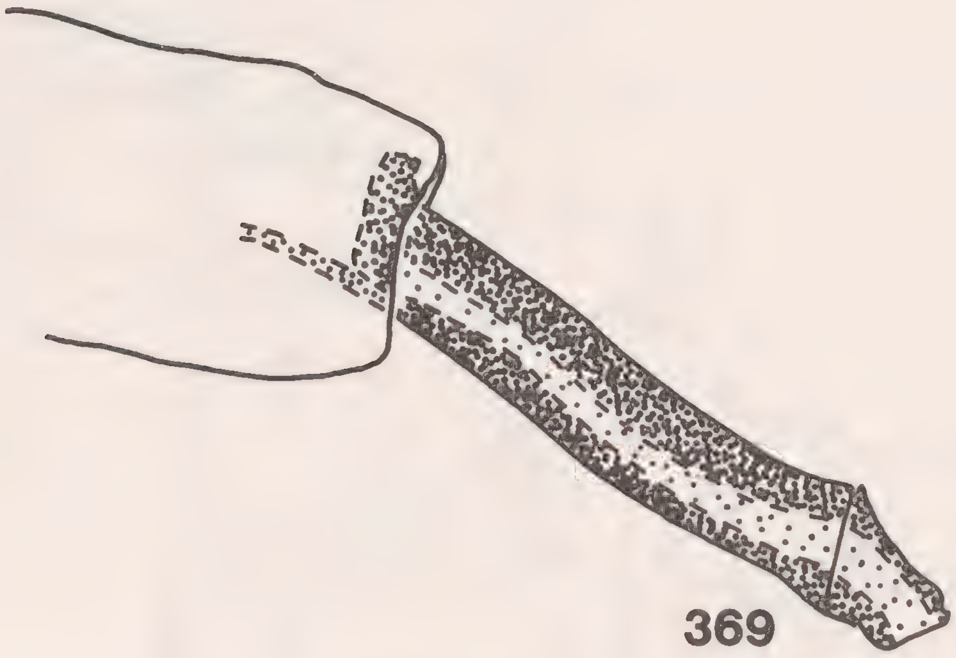

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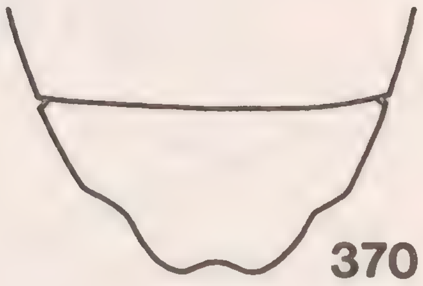

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Figs. 365, 366. H. (Hadrorestes) exilis male genitalia. 365, aedeagus; 366*, internal sac.

Figs. 367*. H. (Hadromeropsis) rufipes spermatheca.

Figs. 368-370. Hadromeropsis striatus male. 368, aedeagus; 369**, internal sac; 370, ventrite 5.

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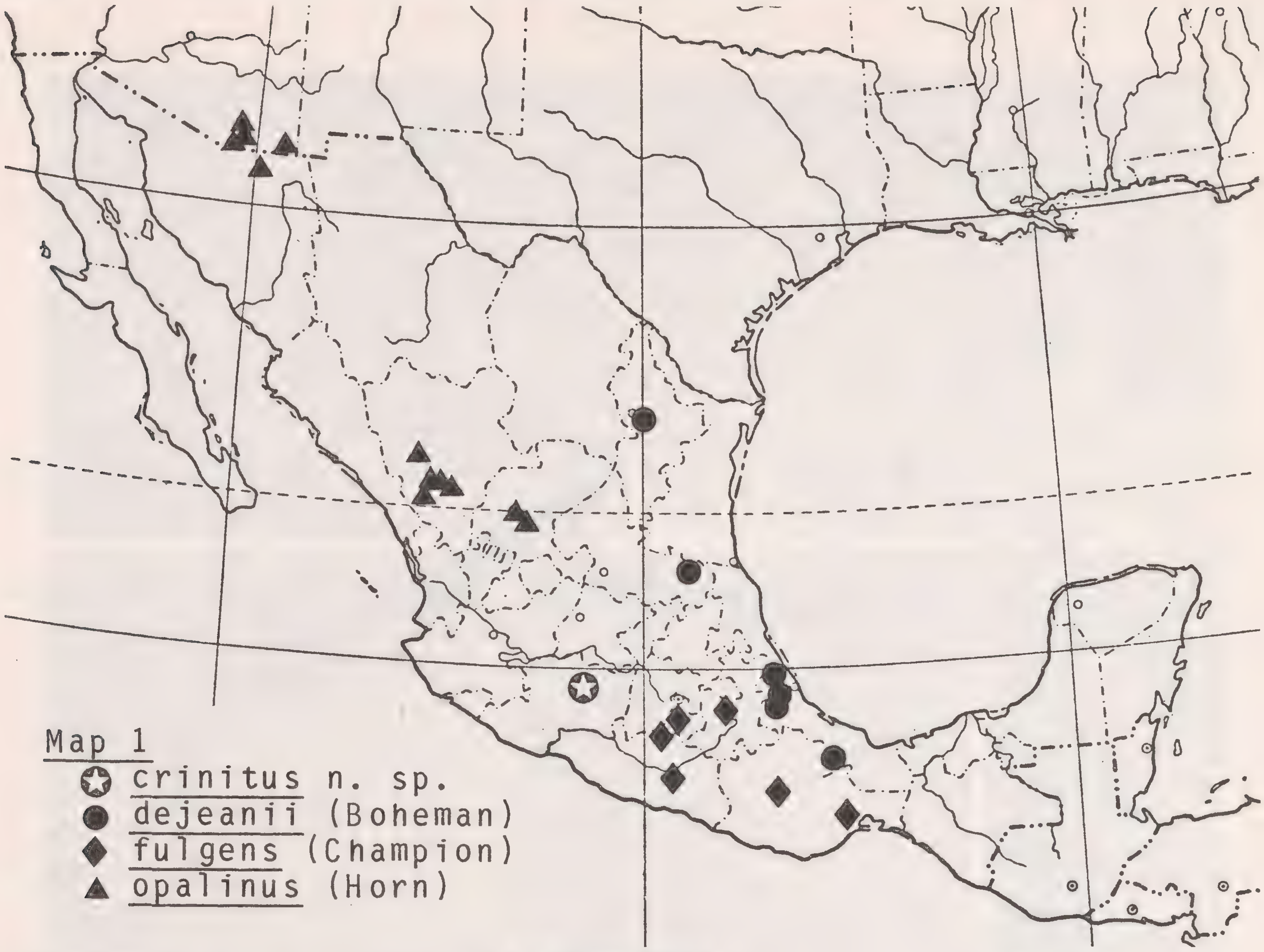
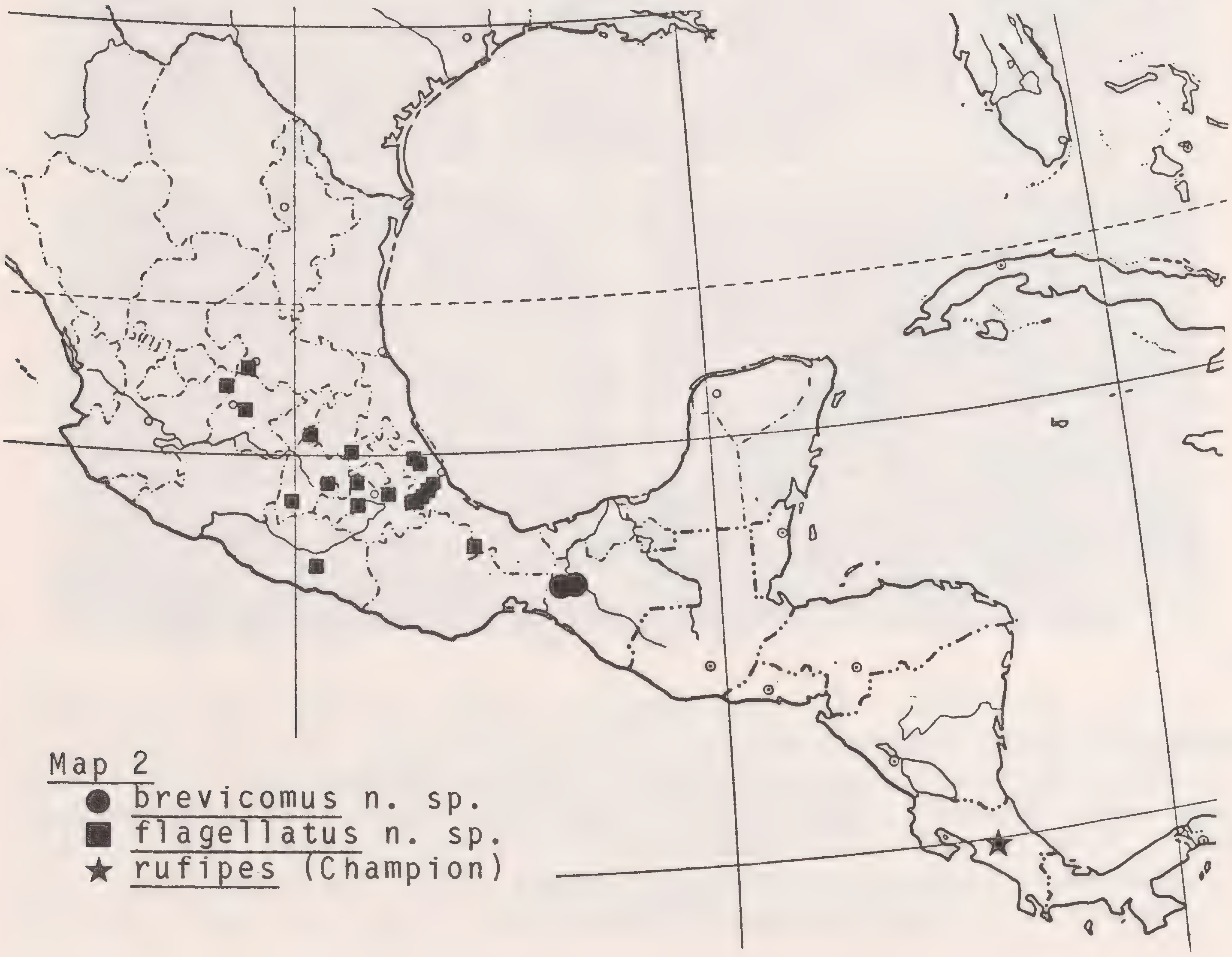


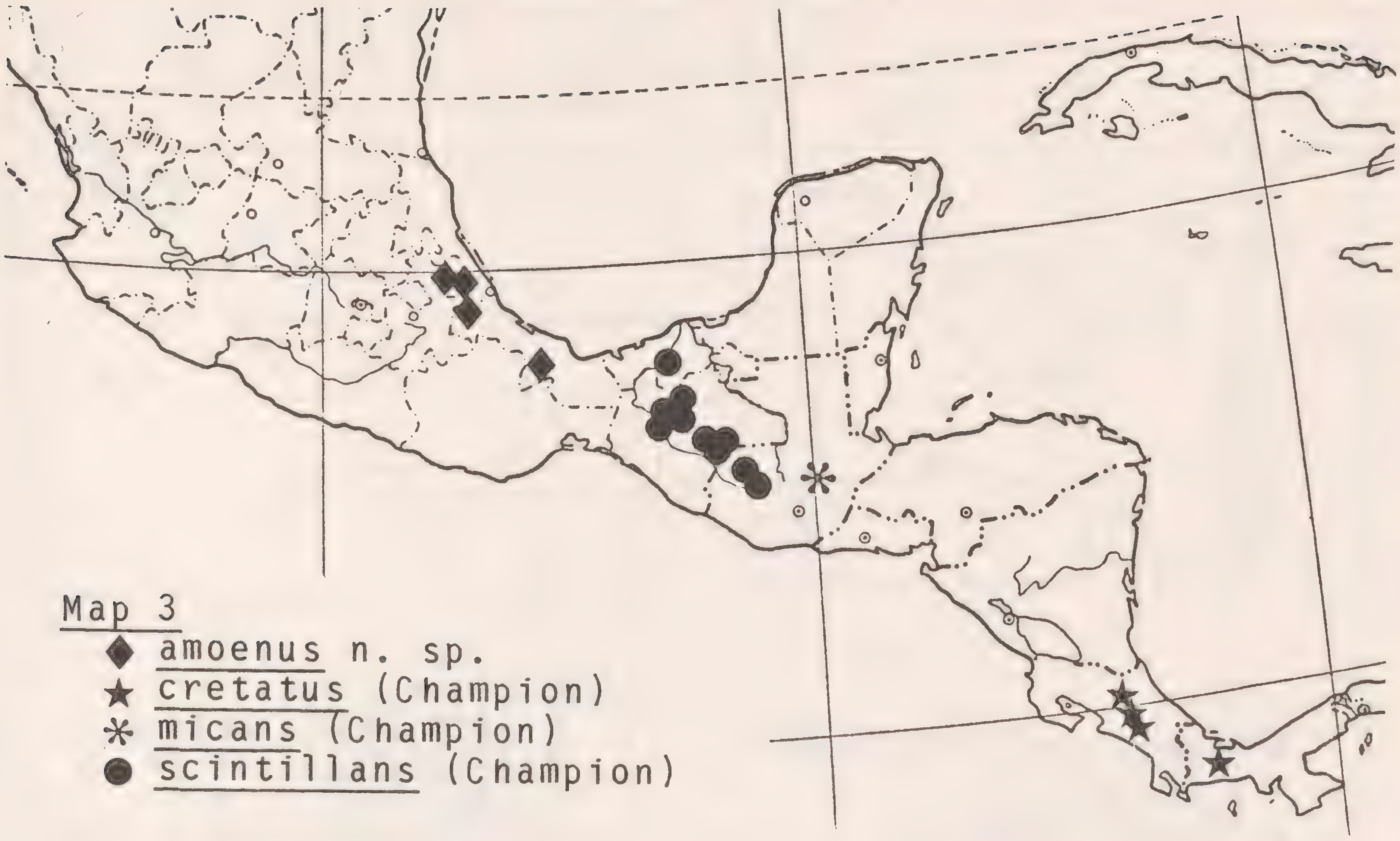
Map 1

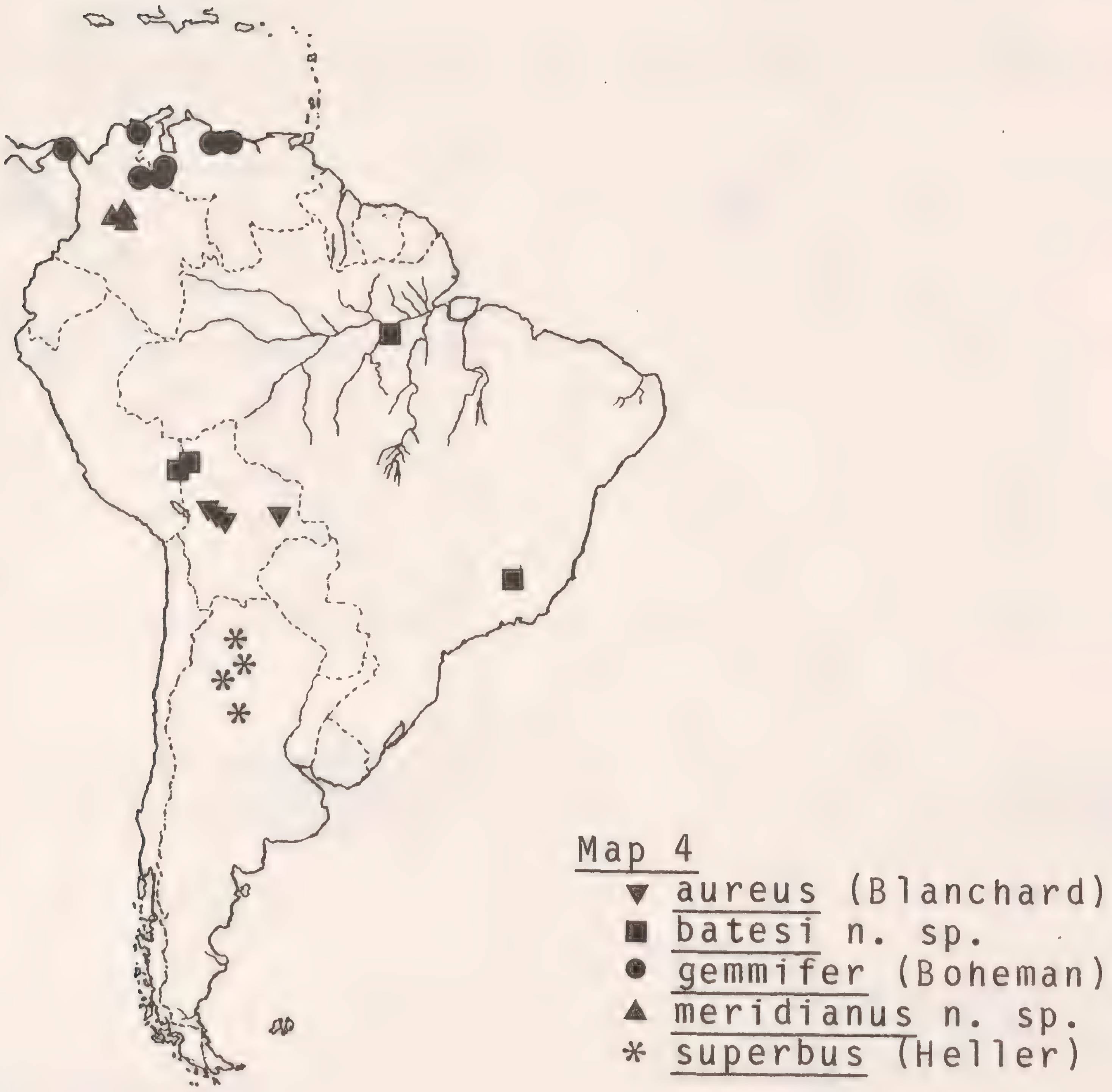
- ✪ *crinitus* n. sp.
- ● *dejeanii* (Boheman)
- ◆ *fulgens* (Champion)
- ▲ *opalinus* (Horn)

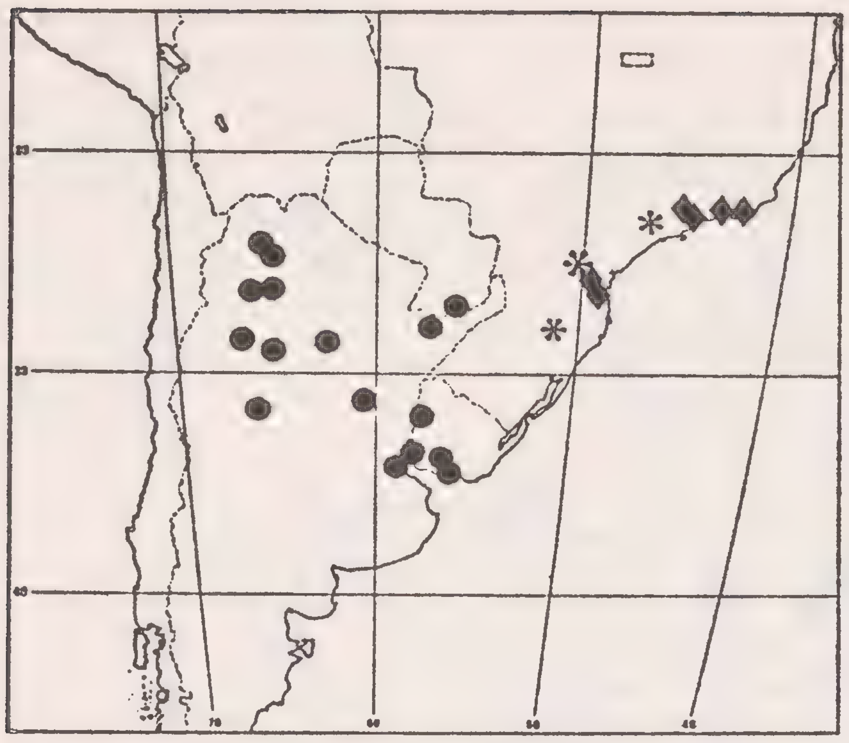


Map 2

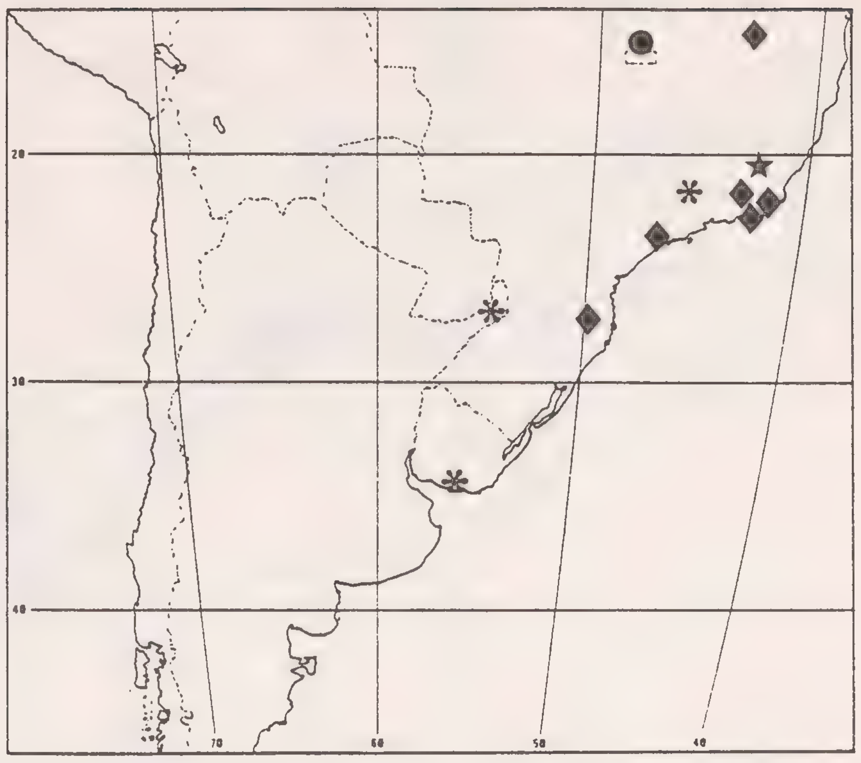
- ● *brevicomus* n. sp.
- ■ *flagellatus* n. sp.
- ★ *rufipes* (Champion)


Map 3
◆ amoenus n. sp.
★ cretatus (Champion)
✳ micans (Champion)
● scintillans (Champion)

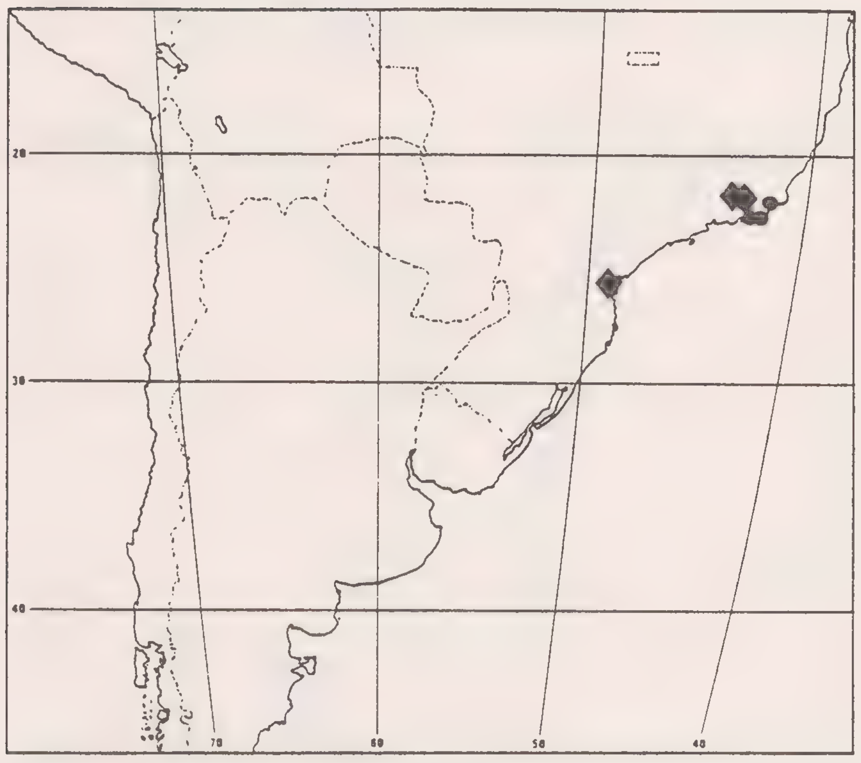

Map 4
▼ aureus (Blanchard)
■ batesi n. sp.
● gemmifer (Boheman)
▲ meridianus n. sp.
✳ superbus (Heller)



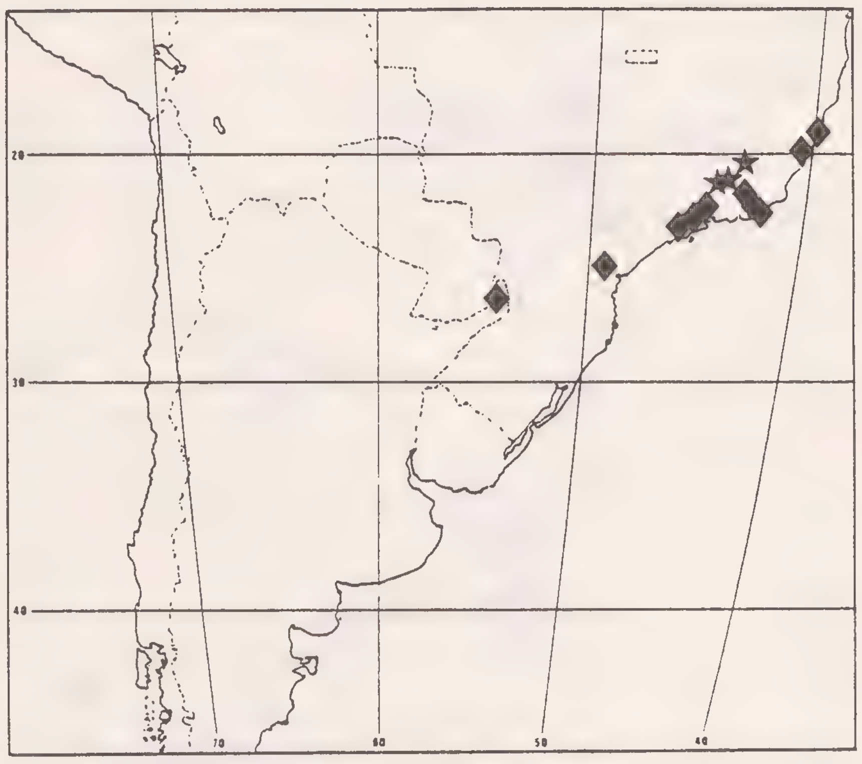
Map 5
● *argentinensis* (Hustache)
* *plebeius* n. sp.
◆ *togatus* (Boheman)



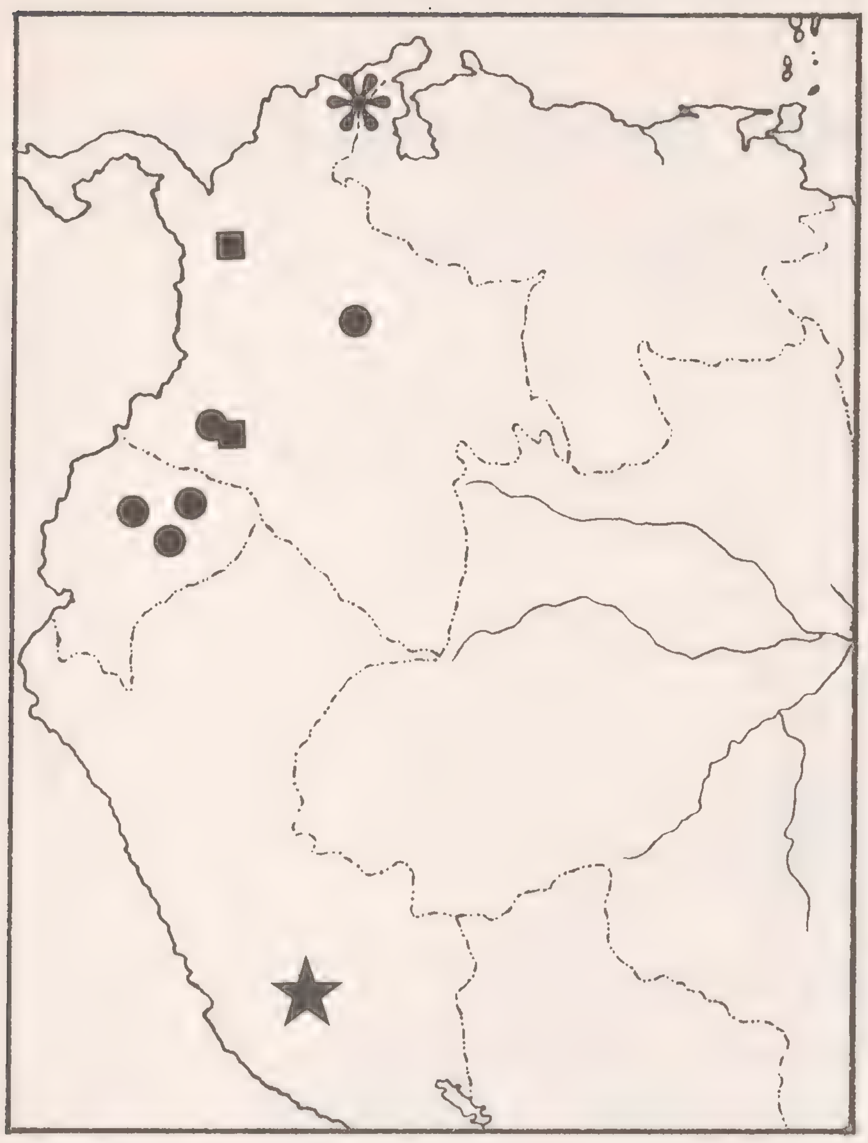
Map 6
● *beverlyae* n. sp.
◆ *fasciatus* (Lucas)
* *pallidus* n. sp.
★ *pulverulentus* n. sp.



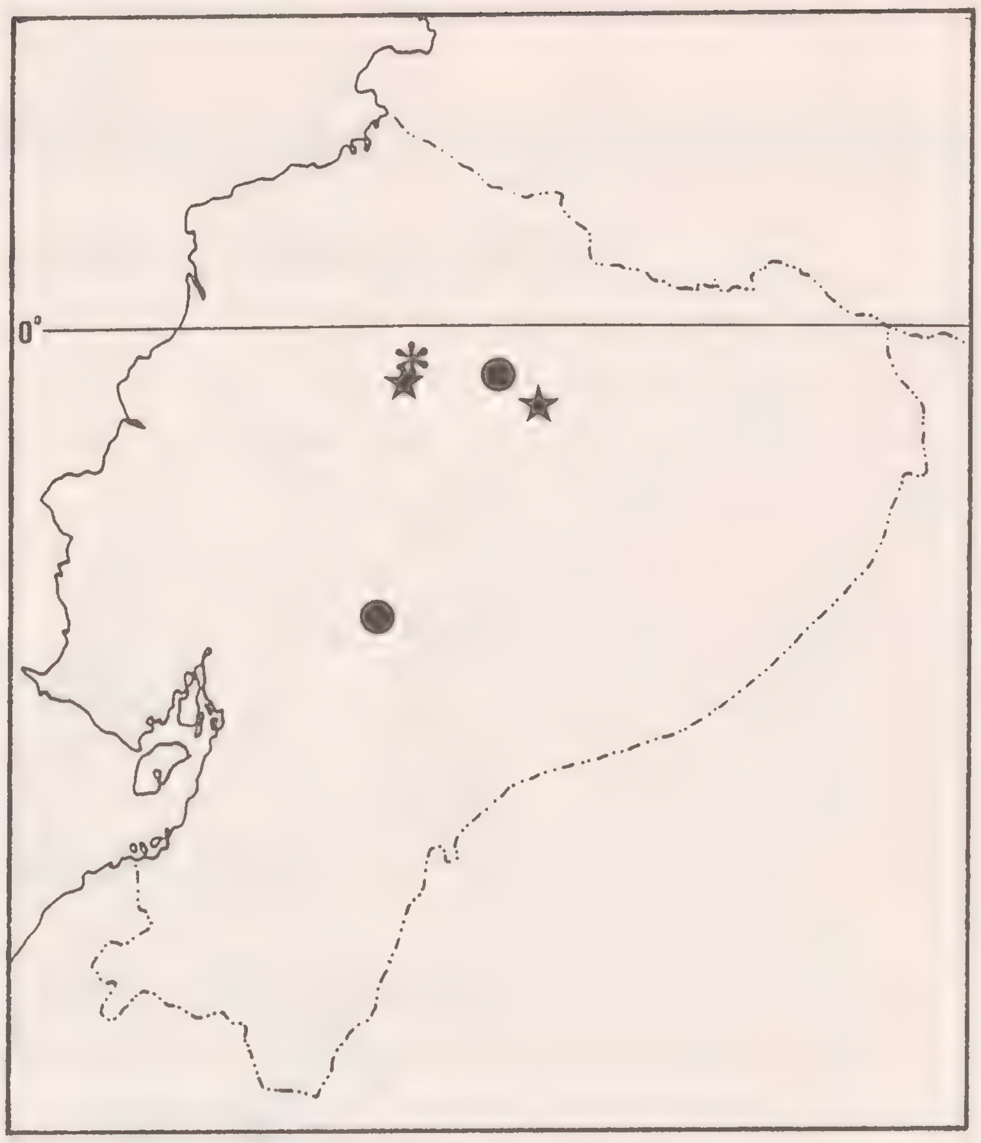
Map 7
● *excubitor* n. sp.
◆ *speculifer* n. sp.



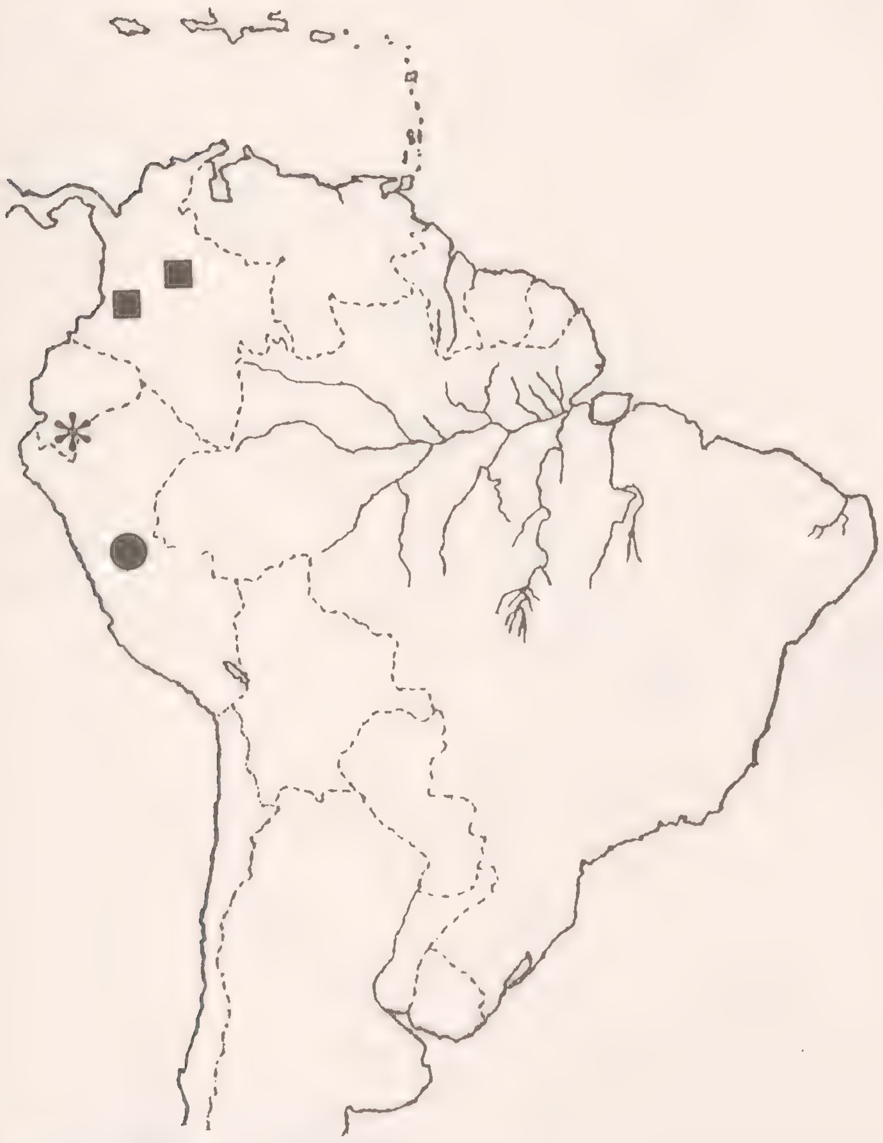
Map 8
★ *atomarius* (Boheman)
◆ *nobilitatus* (Gyll.)



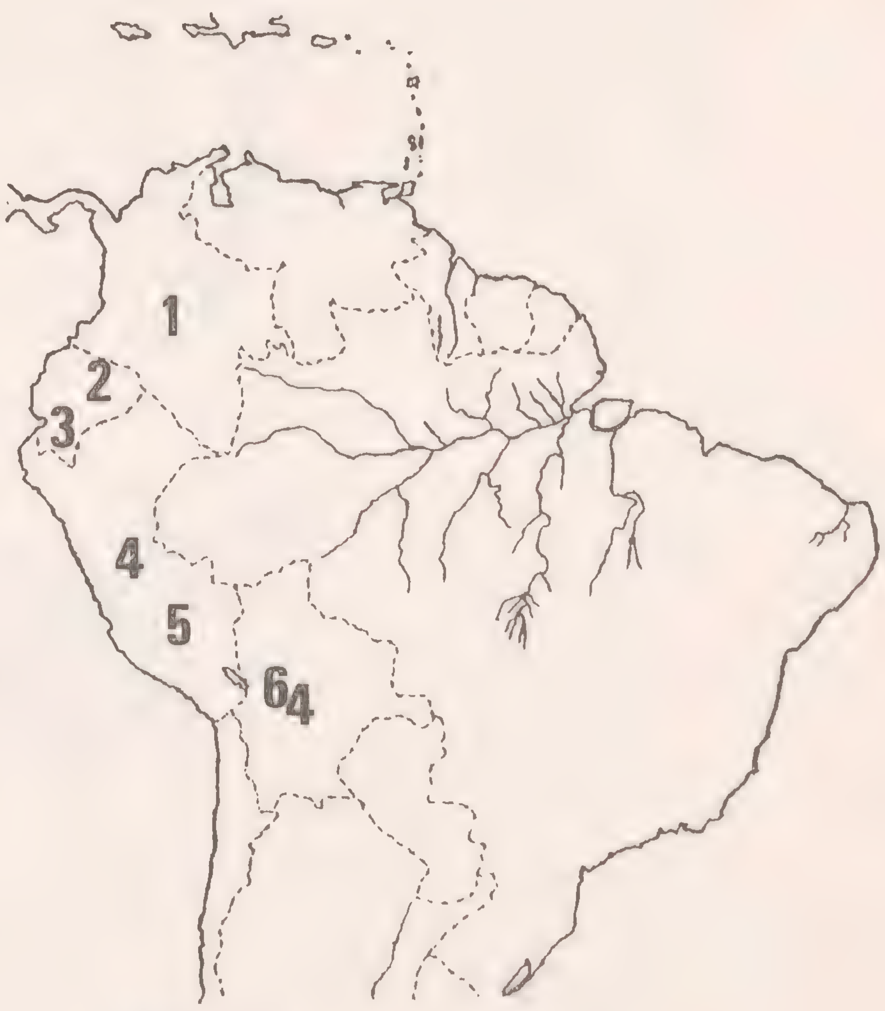
Map 9
- ● *alacer* n. sp.
- ★ *inconscriptus* n. sp.
- ✳ *nebulicolus* n. sp.
- ■ *silaceus* n. sp.



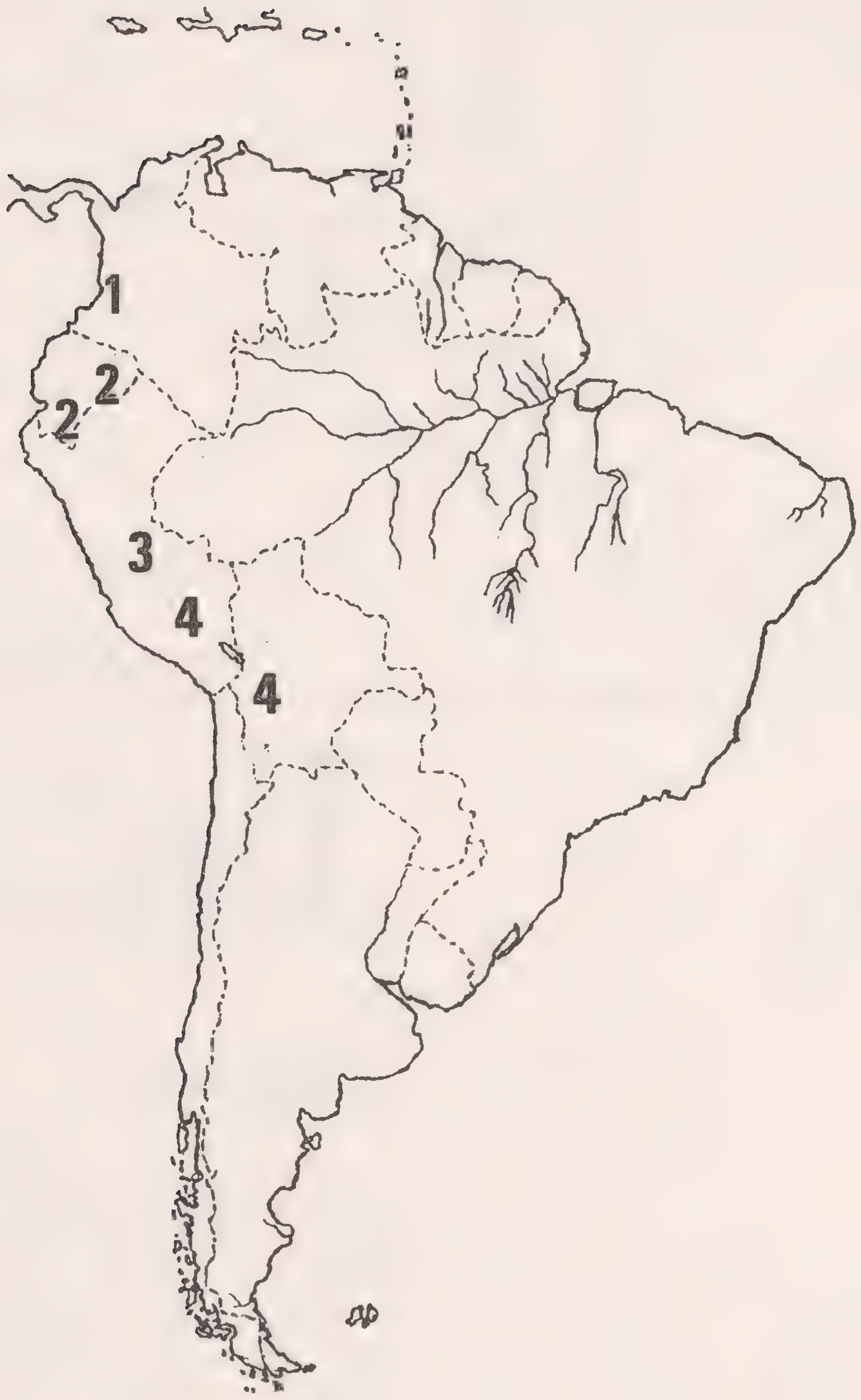
Map 10
- ● *apicalis* n. sp.
- ✳ *nanus* n. sp.
- ★ *transandinus* n. sp.



Map 11
- ● *bombycinus* n. sp.
- ■ *impressicollis* (Kirsch)
- ✳ *institulus* n. sp.



Map 12
- 3 *conquisitus* n. sp.
- 6 *contractus* n. sp.
- 1 *magicus* (Pascoe)
- 2 *nitidus* n. sp.
- 5 *picchuensis* n. sp.
- 4 *spiculatus* n. sp.



Map 13
3 cavifrons n. sp.
1 mandibularis n. sp.
4 pectinatus n. sp.
2 scambus n. sp.